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Employment, Inflation, and the Distribution of Income

JOHN C. H. FEI

Associate Professor of Economics, Antioch College
and

PAUL WELLS

Assistant Professor of Economics, University of Illinois

IN WRITING THE *General Theory* Keynes wanted to develop a "Theory of Output and Employment as a whole"¹ which would be applicable to the "economic society in which we actually live."² In particular Keynes did not want to make the mistake he thought classical doctrine guilty of — that of developing a special theory whose conclusions would be valid at special times only.

In so far as Keynes based his analysis on the assumption of perfect competition, he too is open to the same criticism which he leveled against classical theory, for perfect competition is not a characteristic of the "economic society in which we actually live." The basis for the belief that the *General Theory* does postulate perfect competition seems to rest on the assumption made that "the real wage rate equals the

marginal productivity of labor."³ At the same time, though, another fundamental postulate of the *General Theory* is that "the supply of labor depends upon the money wage rate,"⁴ and this assumption would lead one to believe that Keynes did not wish to assume "perfect competition throughout"⁵ as some economists believed. This second postulate implies monopolistic behavior on the part of labor unions — as if unions bargained for specific money wage rates regardless of the real wage rate. In defending his monetary supply function, which "Keynes nowhere flatly asserts,"⁶ he never hesitated to refer to union-management behavior in the process of collective bargaining. Nevertheless, most interpretations of Keynes's

³ Lawrence Klein, *The Keynesian Revolution* (New York: Macmillan, 1947), p. 75.

⁴ *Ibid.*

⁵ Arthur Smithies, "Effective Demand and Employment," Chapter 39 in S. E. Harris, ed., *The New Economics* (New York: Alfred A. Knopf, 1947), p. 560.

⁶ *Ibid.*, p. 558.

¹ J. M. Keynes, *The General Theory of Employment, Interest and Money* (New York: Harcourt, Brace and Company, 1936), p. 293.

² *Ibid.*, p. 2.

theory have assumed perfect competition,⁷ even though the *General Theory* itself is not clear on this point.

The ambiguity, even at this late date, as to whether the *General Theory* postulates perfect or imperfect competition appears to be due, it will be argued here, mainly to the vague and obscure treatment Keynes accorded the *theory of income distribution* in his book. To Keynes's way of thinking, the theory of distribution was not a part of "The Theory of Output and Employment *as a whole*,"⁸ and he wished not to deal with this problem. Yet it can hardly be believed that the *General Theory* does not involve a theory of distribution, for the two fundamental postulates of the theory, cited above, which describe the nature of the demand for and supply of labor, are really behavioristic assumptions for the owners of the factors of production. As such they serve to form the basis of a distribution theory. Thus although the *General Theory* brilliantly analyzes the market for aggregate output, it seems to be somewhat vague regarding the nature of the market for *inputs*.

Perhaps Keynes was vague at this

⁷ A. Smithies, J. Tobin, and J. Meade (pp. 557, 577, and 606 respectively in *The New Economics*) for example all ascribe an assumption of perfect competition to the *General Theory*.

⁸ J. M. Keynes, *op. cit.*, p. 293, writes that "the division of Economics between the Theory of Value and Distribution on the one hand and the Theory of Money on the other hand is, I think, a false division. The right dichotomy is, I suggest, between the Theory of the Individual Industry or Firm and of the rewards and the distribution between different uses of a *given* quantity of resources on the one hand, and the Theory of Output and Employment *as a whole* on the other hand."

point because he was undecided as to whether he should adopt or discard the competitive distribution theory of the classical school. It is not difficult to understand why Keynes should have been vague and uncertain about the distribution of income. He clearly had some misgivings about the appropriateness of assuming perfect competition, and yet in the absence of this assumption no simple solution to the distribution problem appears. In the short run, which was Keynes's main interest, the distribution of income depends mainly upon the outcome of union-management wage bargaining and management price setting. In spite of the years of intensive study these problems have received, especially since the publication of the *General Theory*, economists do not yet fully understand these important pricing problems. No wonder, then, that in order to concentrate on the analysis of aggregate demand for output, Keynes dispatched the theory of income distribution by simply assuming that, in equilibrium, the real wage rate would equal the marginal productivity of labor. Judging from the operation of our economy, Keynes's failure to incorporate a realistic noncompetitive analysis of distribution in his *General Theory* undoubtedly weakens his whole theory, for who can deny that collective bargaining and monopolistic pricing are unrelated to inflation and the level of employment?

The purpose of this paper is to make an attempt to base the *General Theory* explicitly on a noncompetitive theory of distribution. The analysis will attempt to show that far from weakening the *General Theory*, a liberalized distribu-

tion theory foundation adds strength and realism to Keynes's analysis of employment and inflation. In view of the foregoing discussion it is believed that a useful framework for a noncompetitive distribution theory should be capable of being integrated into a general theory of employment and inflation, realistic in that it is based on behavioristic assumptions suitable for the description of collective bargaining and monopolistic pricing, and open with respect to the distribution of income⁹ so that it is capable of providing scope for future research within its own framework.

To carry out the analysis, a fairly simple perfectly competitive version of the *General Theory* will first be expounded. This will then be contrasted with a noncompetitive version to see what conclusions can be reached. Three component parts make up the two models of the economic system. These parts are the analysis of: (1) aggregate demand, (2) physical supply, and (3) the relation between income distribution and employment. Because (1) and (2) are very familiar to economists, they will be given brief treatment only.

Analysis of Aggregate Demand

Unlike the *General Theory* the analysis of aggregate demand will be carried out here in money terms rather than in real terms. Thus aggregate de-

mand is defined as the total of monetary expenditures for the purchase of final goods. Quadrant I of Chart 1 represents the static multiplier determination of this variable. Here SS' denotes the level of money savings forthcoming at any given level of income in money terms. The equilibrium level of aggregate demand is determined at point A by the intersection of the savings function with the investment function as represented by the horizontal line I .¹⁰

Analysis of Physical Supply

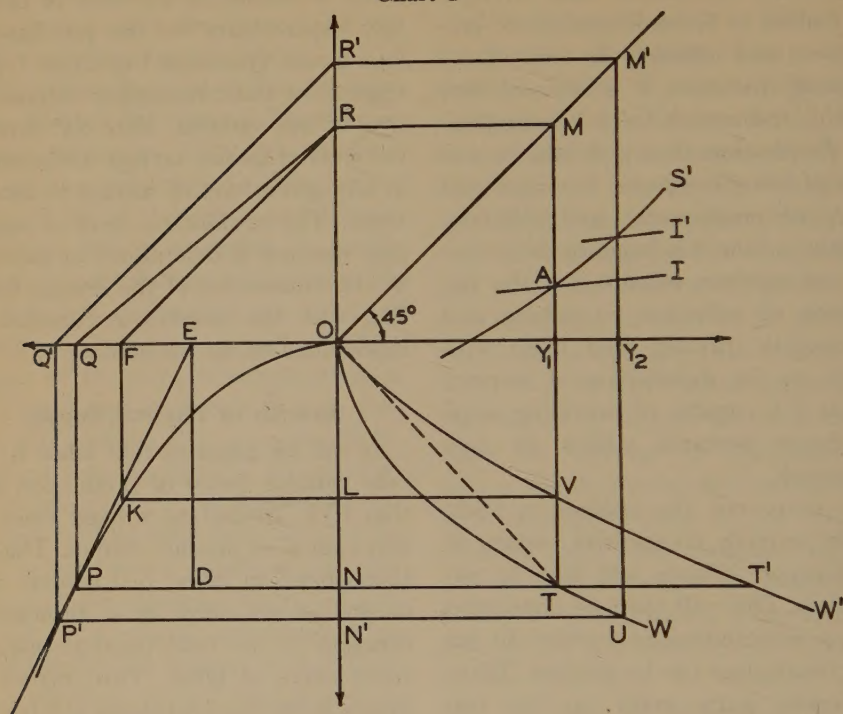
It will be assumed that labor is the only variable factor of production and that it is applied to a fixed stock of real capital to produce output. The relation between labor, real capital, and output is described by a production function or the total physical productivity curve of labor. This relation is drawn in the third quadrant of Chart 1. The employment of labor N is measured downward along the vertical axis, and total physical product Q is measured to the left along the horizontal axis. The production function OPP' represents the total physical output obtained by applying various amounts of labor to the fixed stock of capital.

It will also be assumed that the production function has all the conventional properties; total physical output increases and marginal physical output decreases as employment increases. The latter property is known as the "law of diminishing returns." If this law did not obtain, then the production func-

⁹ The writers believe, relative to the current state of knowledge, that a closed model would lead one to believe falsely that the outcome of union-management negotiations could be predicted. This is not true! A model which is *open* in this respect has possibilities of being vaguely right rather than being precisely wrong.

¹⁰ This analysis of aggregate demand differs from that of the *General Theory* inasmuch as it is assumed that income recipients suffer, to a slight degree, from a "money illusion."

Chart 1



tion would be drawn as a straight line out of the origin.

Employment, Inflation, and the Distribution of National Income

Assuming perfect competition, a relation between national income and the level of employment is easily derived from the competitive theory of distribution (Quadrant IV). Since an equilibrium condition of perfect competition is that the money wage rate is equal to the marginal value product

$$(1.1) \quad p = \frac{w}{MPP},$$

where p denotes the money price per unit of output, w the money wage rate, and MPP the marginal physical prod-

uct of labor. Multiply both sides of this equation by Q , total physical output.

$$(1.2) \quad pQ = \frac{wQ}{MPP}.$$

Since Q equals the average physical productivity of labor, APP , times employment, N , and since pQ equals monetary national income Y , (1.2) can be rewritten as

$$(1.3) \quad Y = (w) \left(\frac{APP}{MPP} \right) (N).$$

Thus there would be a determinate relation between Y and N , given the money wage rate, the production function, and perfect competition. The curve OTw is this relation when the money wage rate is w . At some higher level of money wages, say w' , there

would be another relation $OT'w'$ between these two variables Y and N . Thus a map of *income-employment lines* can be drawn in the fourth quadrant of the diagram, one for each level of money wages.

The economics of the income-employment line is fairly simple. Suppose ON to be the level of employment. This determines the level of physical output OQ , the marginal physical productivity of labor, and the distribution of output between labor and capital. Given the money wage rate w , a price p per unit of output is determined by equation (1.1). Given p and Q , the aggregate volume of proceeds, pQ , which must be forthcoming in order to maintain the level of employment at ON is determined. If the wage w is fixed, then because MPP decreases as employment increases, price must rise as output increases. Thus the income-employment lines are convex with respect to the Y axis.¹¹ This means that an additional dollar's worth of aggregate demand has a smaller employment-increasing effect at high levels of employment than at low levels, with the difference being determined by the degree to which the law of diminishing returns operates.

A "monetary" version of the *General*

¹¹ In Chart 1 the dotted straight line OT has a slope with respect to the Y axis of $\frac{N}{Y} = \frac{\epsilon}{w}$, where $\epsilon = \frac{MPP}{APP}$ which is equal to $\frac{dQ}{Q} \bigg/ \frac{dn}{N}$ which is the elasticity of the production function. The convexity of the income-employment line OTw with respect to the Y axis means that ϵ is decreasing sufficiently as N increases. This will be true provided the law of diminishing returns operates strongly enough, and this is the assumption implicitly made in the text.

Theory can now be constructed (Chart 1). National income is determined at OY_1 by the intersection of the savings function and the investment function at point A by way of the familiar static multiplier analysis. Because a 45-degree line OM has been placed in the first quadrant, this equilibrium level of income is measured along the vertical axis by OR as well. Given the money wage rate w as determined by the supply of labor as a function of the money wage, the income-employment line OTw obtains, and the equilibrium level of income OY_1 determines the level of employment ON . The level of employment determines the level of output NP (or OQ) and the price level p . (In Chart 1 the slope of QR in the second quadrant represents p , since by construction OR equals OY_1 and p equals $\frac{OY_1}{OQ}$.) Hence the pentagon

$TPQRM$ represents the equilibrium position of the perfectly competitive version of the *General Theory*, for it states the value of national income, consumption (MA), savings, employment, output, the price of output, and the distribution of income between capital and labor.

This diagram can be used to analyze the well-known and important conclusion of the *General Theory* that "an increase in effective demand will, generally speaking, spend itself partly in increasing the quantity of employment and partly in raising the level of prices."¹² Suppose investment expenditures were to increase from I to I' so that the level of aggregate demand in-

¹² J. M. Keynes, *op. cit.*, p. 296.

creases from Y_1 to Y_2 . Employment will increase by NN' , output by QQ' , and price by the difference of the slopes of QR and $Q'R'$. It can easily be seen that the employment-increasing effect and the price-increasing effect of an increase in aggregate demand depends, short of full employment, solely upon the degree to which the law of diminishing returns operates.¹³

It can also be seen from this diagrammatic analysis that given the level of aggregate demand, a higher level of money wages, w' say, is consistent only with a lower level of employment OL . Higher wages mean higher costs and prices, and higher prices mean a higher level of aggregate demand is required to support a given level of employment.¹⁴ This does not mean to say, however, that higher wages will necessarily bring about less employment, for other factors pertaining to the real world must be taken into consideration also.¹⁵

¹³ The concept of a fully employed labor force can easily be introduced into Chart 1 by indicating the size of the labor force with a horizontal line $P'U$ in the third and fourth quadrants. With the aid of such a line a sequence of equilibrium pentagons can be constructed which demonstrate the Keynesian theory of inflation after full employment has been reached. In such a situation the impact of aggregate demand increases have no employment-increasing effect and cause only prices to rise.

¹⁴ Note that this conclusion is due, in part, to the money illusion assumption that money consumption is a function of money income.

¹⁵ What this analysis does not make clear, and indeed cannot make clear, is the relation between the level of money wages and aggregate demand. Thus from the foregoing analysis it cannot be asserted that higher wages mean lower levels of employment because the effect of higher wages and prices on aggregate demand is not known. Perhaps

This outline covers the main features of a monetized version of the *General Theory* for a perfectly competitive economy. A version of the *General Theory* based on imperfect competition will now be developed.

The *General Theory* and Noncompetitive Distribution Theory

When the assumption of perfect competition is dropped, no simple solution to the problem of pricing of output and labor appears. However, the following are postulated:

(1) The money wage rate is determined by a process of collective bargaining between unions and management.

(2) Firms set the price of output by marking up their average labor costs.

To obtain what it is hoped will be a more realistic analysis of distribution, behavioral assumptions appropriate to the description of imperfect market structures postulated above in (1) and (2) will be made later.

The introduction of imperfect competition does not alter the functions shown in quadrants I, II, and III of Chart 1, but does alter the relation between income and employment shown in the fourth quadrant. On the basis of the two assumptions above, a new relation between these variables Y and N will be drawn up.

Let U be the total wage cost (in dollars) per unit of output. A profit

if something were known about the redistributive effects of higher wages and the marginal propensities to consume of capitalists and laborers, then some guess as to the effect of a wage change on employment could be hazarded.

markup factor g may then be defined as follows:

$$(2.1) \quad p = gU, \text{ where } g \geq 1.$$

The behavioristic assumption made here is that management would like to set a high g in order to secure a high rate of return on invested capital. However, consumers' resistance and their ability to shift their custom from one firm to another limits the price a firm can charge and hence the markup it sets.¹⁶ For the same reasons firms are interested in keeping U down to as low a value as possible and this leads them to resist union demands for higher wages and to search for cost-reducing methods of production.

Unions, on the other hand, are interested in increasing the real wages of their members by bargaining for higher money wages. Successful union action would cause U to increase, for this variable is the product of the money wage rate and the average labor cost θ . Thus:

$$(2.2) \quad U = w\theta,$$

where θ equals $\frac{N}{Q}$. Substituting (2.2)

into (2.1) gives the following accounting equality:

$$(2.3) \quad p = gw\theta.$$

Using this equality, a relation between employment and national income can be derived. Multiplying both sides of equation (2.3) by Q results in

$$(2.4) \quad pQ = gw\theta Q.$$

Since θ equals $\frac{N}{Q}$ and pQ equals Y , there results, after simplification, the desired

relation between income and employment.

$$(2.5) \quad Y = gwN.$$

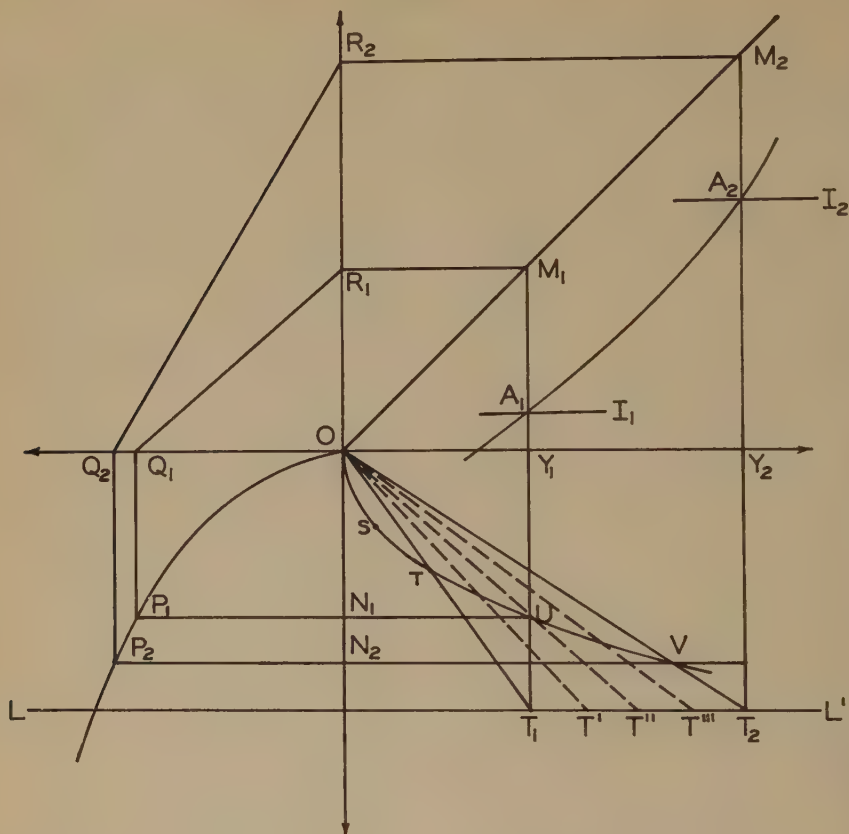
Since the relation between Y and N , which will be called the "induced demand (for labor) function,"¹⁷ involves both the profit markup factor g and the wage rate w , the manner in which these two variables change as income and employment vary must be specified before equation (2.5) can actually be plotted in the fourth quadrant of Chart 2. That is, in order to construct a deterministic model of employment, output, and inflation, appropriate behavioral assumptions must be postulated for unions and management so that w and g can be represented as functions of the other variables already introduced into the system.

Assume, for the sake of simplicity, that neither w nor g varies as income and employment increase. In this case the straight line OtT_1 , with slope wg , represents the induced demand function. The fact that this curve is a straight line means that the employment-increasing effect of an additional dollar's worth of aggregate demand is the same whether income and employment are high or low. It is clear, though, from an inspection of Chart 2 that the Keynesian conclusions as to the effects of an increase in effective demand on employment and prices still holds and that, short of full employment, these effects are still solely controlled by the extent to which the law of diminishing returns operates. Thus a given increase in aggregate demand

¹⁶ Cf. R. F. Harrod, *Economic Essays* (London: Macmillan, 1952), Essay 8, p. 139.

¹⁷ The reason for this name is that given aggregate demand for output, the induced demand for labor is then determined by this function.

Chart 2



will always bring about an equal increase in employment, but the associated increase in price will be greater the higher the level of employment where the law of diminishing returns operates more strongly. Furthermore, the distribution of income between capital and labor still is completely determined, with labor's share being $\frac{wN}{Y}$ and capital's being $1 - \frac{wN}{Y}$. Needless to say, this model of employment and inflation is less than fully satisfactory because of the unrealistic behavior assumptions postulated for union and

management that w and g are independent of the level of income and employment.

To carry the analysis one step further in the direction of realism, suppose that unions are able to bargain successfully for higher money wages and firms are able to boost their profit markup as full employment is approached in some definite way. That is, make the following more realistic behavioral assumptions:

$$(2.6) \quad (a) \quad w = \alpha(N) \\ (b) \quad g = \beta(N)$$

where α and β are increasing functions of N , especially in the neighborhood of full employment. The induced demand function (2.5) may now be written as

$$(2.7) \quad Y = N\alpha(N)\beta(N)$$

and is graphically represented by the convex curve *Ostuv*.¹⁸

Since a particular course for w and g has been specified, it can be seen from the resulting induced demand function that the price increase (the difference in the slope of Q_2R_2 and Q_1R_1) when aggregate demand increases from, say, OY_1 to OY_2 is due to the operation of two sets of forces. They are

(1) The convexity of OP_1P_2 , that is, the operation of the law of diminishing returns.

(2) The convexity of the induced demand function as determined by the rates at which w and g increase as income and employment increase. Hence it can be seen that price increases are caused both by a shortage of productive capacity and the exercise of monopoly power by unions and firms in their attempts to capture a larger share of national income for themselves. More specifically it is seen that inflation can be caused by the attempts of the various economic groups to secure a larger *real* share of income as employment and output increase. The lack of restraint, or social discipline, on the part of management and unions, which makes for a high elasticity of β and α , is a cause of inflation quite apart from

the materialistic or physical causes of inflation, and this institutional cause of inflation would completely elude economic analysis if the competitive theory of income distribution were to continue to be accepted.

Although this analysis of employment, income, and inflation is probably more satisfactory than its immediate predecessors because it offers a better description of the aggregate functioning of the economy than do models based on perfect competition, it is itself not free of shortcomings. This model suffers mainly from the fact that its use requires that much more information be fed into it than can currently be supplied. It will determine the level of employment, output, the price of output, and the distribution of income, provided fairly precise empirical information regarding aggregate demand, union-management behavior (as summarized by α and β), and the production function is given to it. Although each of these three rather broad areas has been the object of much research, still not enough usable information exists, especially in the field of labor economics, for the statistical implementation of the model.

These lacunae in our knowledge become especially evident when the need for extending the analysis into the realm of dynamic economics is considered. If inflation is understood to mean a continuous upward movement of prices and wages not necessarily in response to prior increases in aggregate demand, then clearly static equilibrium models of the type developed in this paper are not completely suited to the analysis of the phenomenon. With both

¹⁸ The curve *Ostuv* is convex with respect to the Y axis and wg maintains at least a steady rate of increase with respect to N . This condition would be satisfied if the second and higher derivatives of α and β are neglected as a first approximation.

unions and management focusing their attention on the real returns to labor and capital rather than on their monetary returns alone, it does not seem unreasonable to believe that price inflation will continue to play an important part in the aggregate functioning of the economy. The reason for this is that as prices alone, or wages alone, rise, for any reason whatsoever, the real factor reward of labor, $\frac{w}{p}$, or of capital, $\frac{g}{p}$, must decrease. If both capital and labor possess sufficient monopoly power to raise their *monetary* returns to yield what they believe to be a satisfactory *real* factor reward, then prices could continue to rise indefinitely. This phenomenon can be represented by a sequence of straight lines OT , OT' , OT'' , . . . (Chart 2), the slopes of which are $w_t g_t$, the values of w and g at different points of time t . In addition to this geometric interpretation, it would not be difficult to construct a fully dynamic model that would generate a continuous rise in prices and wages.

However, it would be extremely difficult, almost impossible, to construct a dynamic model now which would describe, with some degree of accuracy, the aggregate behavior of unions and management, and hence the aggregate behavior of the economy. The reason for this is that again not enough is known about the real income demands of capital and labor, and their ability to make their demands effective by all the means at their disposal. These means would include the economic practices of collective bargaining, price setting, restriction of entry, union control of membership, and so forth, as

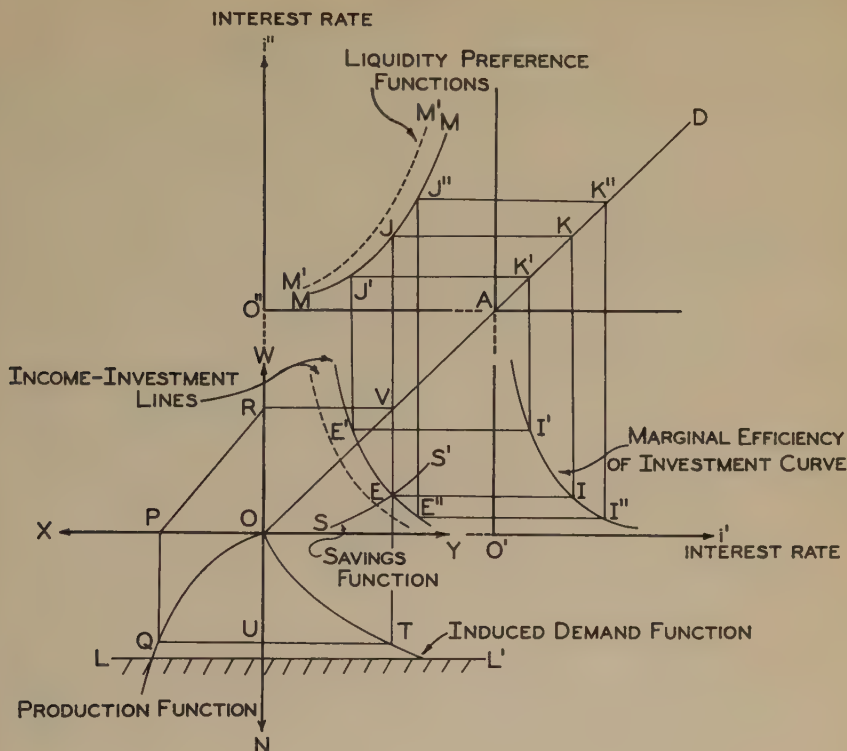
well as various noneconomic practices aimed at securing social sympathy and favorable political action. Although the outcome of all of these socio-economic forces is directly measurable in w and g , the forces themselves and their relations with one another are neither directly measurable nor very well understood. Thus it would appear that before elaborate and elegant dynamic models are constructed, and parameters statistically estimated, some fairly earthy additional research concerning the socio-economic behavior of labor and management, and the goals of these groups, needs to be done first.

Even though the model set up here needs to be made dynamic, needs to be statistically implemented, the first need is to find out a great deal more about the functioning of monopolistic groups in this economy. By abandoning the competitive theory of income distribution, research in this field can be applied to aggregate models of the Keynesian type to yield a better understanding of the aggregate economic problems of the economy.

Conclusion

In this paper an attempt has been made to show that the substitution of a noncompetitive distribution theory for the unrealistic competitive theory, which many economists believe to be at the basis of Keynes's work, not only preserves all the analytical results of the *General Theory* but actually adds strength to his theory of employment. This is true because the discarding of the competitive assumption allows information regarding the monopolistic behavior of firms and unions to be

Chart 3



Appendix

Chart 3 represents a closed model in which the rate of investment is an endogenous variable. The following functions are added to those of Chart 2.

(1) An investment function: represented by the curve $I'I''$. In this segment of the diagram, investment is measured in the vertical direction along the OA axis, while the rate of interest is measured in the horizontal direction along the $O'i'$ axis.

(2) A liquidity preference map: represented by the curves MM , $M'M'$, . . . , with each curve corresponding to a given quantity of money. Here the rate of interest is measured along the vertical axis $O''i''$, and the level of

worked into the framework of the analysis—and it is surely important that this be done.

In view of the fact that Keynes was not clear on whether he wished to assume perfect competition or not, he should be given the benefit of the doubt and a monopolistic assumption ascribed to the *General Theory*. In this the writers are quite at odds with the conclusion reached by many economists.¹⁹ To give further support to the contention set forth here, it will be shown, in the appendix, how Keynes's interest theory may be neatly integrated into the noncompetitive model of this paper.

¹⁹ Cf. n. 7.

income along the horizontal axis $O''A$. Each of these functions states that given the quantity of money, the rate of interest is determined by the level of money income.

Let the axes of functions (1) and (2) be placed in such a way that $OO'AO''$ forms a perfect square. With the aid of the investment function $I'I''$, a 45-degree line OAD , and the curve MM , a number of rectangles can be constructed. They are: $EJKI$, $E'J'K'I'$, $E''J''K''I''$ The lower left hand corners of these rectangles $EE'E''$. . . define a curve which may be called an income-investment line and which lies in the same quadrant as does the sav-

ings function SS' . The intersection of the *investment-income line* $EE'E''$. . . with the saving function at point E determines the equilibrium position of the system, which is shown by the equilibrium pentagon $VTQPR$ and the equilibrium rectangle $EJKI$. This diagram can be used to trace out the effect of, among other things, a change in the quantity of money on the endogenously determined variables of the system.

Thus the important contributions Keynes made to the theory of interest are also perfectly compatible with a noncompetitive theory of income determination.

Executive Personality and Psychological Testing

STANLEY STARK

*Assistant Professor of Psychology, Institute of Labor and Industrial Relations
University of Illinois*

WILLIAM H. WHYTE, JR., argues that the personality testing of business executives is unscientific and unethical. Many people have been impressed with his logic and documentation. The purpose of this article is to reveal certain weaknesses of each. Specifically, it will attempt to show that his argument ignores large segments of highly relevant literature, confuses management tools with management values, and in general, appears to be contrived to fortify his larger case against management endorsement of the Social Ethic. The particulars to be examined are all from Whyte's recent best-seller *The Organization Man*.¹

Scientism or Science?

Whyte claims that (1) personality tests are critical in executive selection, (2) personality tests are executive loyalty tests, (3) personality tests are conformity tests, (4) personality test

profiles mold executive personalities, (5) personality tests are invalid for executive selection, and (6) group personality test performance tells little about individuals.

Personality test, as Whyte uses the term and as it is used in this paper, refers to any professional psychological test which purportedly measures personality, vocational interests, attitudes, or values. *Personality* in this paper will refer to those characteristics of an individual purportedly measured by such tests, i.e., various traits (sociability, dominance, dependence, originality, and so on), interests, attitudes, and values. *Executive* and *manager* will be used synonymously. Several of Whyte's assertions and charges, illustrated in each instance by the most appropriate quotation from *The Organization Man*, will be considered.

Critical in Executive Selection

Whyte says:

At Sears, for example, for the last ten years no one has been promoted in the upper brackets until the board chairman has consulted the tests. At Sears, as elsewhere, the formal decision is based on

¹ William H. Whyte, Jr., *The Organization Man* (New York: Simon and Schuster, 1956); see also William H. Whyte, Jr., "The Fallacies of Personality Testing," *Fortune*, September, 1954, pp. 117-18 *et seqq.*

other factors too, but the weight now being given test reports makes it clear that for those who aspire to be an executive the most critical day they may spend in their lives will be the one they spend taking tests. (p. 174)

Whyte mentions "other factors," but only in passing. James Worthy presents a sharply different picture of the Sears program:

The tests are used with full awareness of their fallibility. The test report is merely one element among a variety of factors which are considered. The general rule guiding the use of tests is that no finding is to be accepted as valid unless confirmed by other evidence independent of the tests themselves.²

Sears's practice, as described by Worthy, conforms to that found in most company programs. Consultants pursue the same practice. C. Wilson Randle of Booz, Allen and Hamilton reported in 1956 on a series of 3,000 executive appraisals completed by his firm during the preceding eight years. The *Harvard Business Review* emphasized psychological tests in billing his article. However, Randle relates that other data were not only elicited but that they played a much larger part than tests in the appraisal.

Each executive's background and experience were analyzed in detail. This covers age; education; professional, social, and civic activities; work experience, health; family relationships. . . . A thorough appraisal of each executive was made by five of his business associates who were best qualified for the task; . . . Each executive

² James C. Worthy, "Planned Executive Development: The Experience of Sears, Roebuck and Company," *Personnel Series No. 137* (New York: American Management Association, 1951), p. 16.

was given a thorough interview lasting from one and a half to three hours.³

The assumption is thus unwarranted that because an executive takes tests, the tests will loom large in or dominate the selection decision. In fact, academic psychologists have protested against the practice of some consultants who test candidates and then submit recommendations "based to an undetermined extent upon hunches and shrewd judgments made independently of the tests. . . ." ⁴ The fact that disapproving comments may be found in the psychological literature attests to the frequency of non-test recommendations.⁵

Executive Loyalty Tests

Whyte asserts:

With aptitude tests the Organization could only hope to measure the specific, isolated skills a man had, and as far as his subsequent performance was concerned, it could predict the future only if the man was magnificently endowed or abysmally deficient in a particular skill. . . . Aptitude tests, in short, revealed only a small part of the man, and as more and more group-relations advocates have been saying, it is the whole man the Organization wants and not just a part of him. Is the man well adjusted? Will he remain well adjusted? A test of potential merit could not tell this; needed was a test of potential loyalty. (p. 172)

This particular paragraph is Whyte's

³ C. Wilson Randle, "How to Identify Promotable Executives," *Harvard Business Review*, Vol. 34 (May-June, 1956), p. 124.

⁴ Donald E. Super, *Appraising Vocational Fitness* (New York: Harper and Brothers, 1949), p. 351.

⁵ For a recent example where these general comments might apply, see *Time*, November 25, 1957, p. 114, regarding the new president of Minneapolis-Moline.

only explicit development of the loyalty theme. Some of his charges are documented, but this one is not. Therefore, only his reasoning and use of information can be examined.

Whyte starts with the statement that traditional aptitude tests were usually too limited in coverage to predict executive success. This is true. In fact, Whyte's colleague Perrin Stryker starts from the same premise: "Psychologists have long recognized that tests for aptitudes and skills could only partially predict a man's ability to succeed," but, unlike Whyte, he continues, "for they soon discovered that perhaps eight out of ten job failures were caused by lack of interest or weaknesses in the personality."⁶ Several studies, to be described in the last section, support Stryker's statement. Whyte, however, chose to omit mention of them or their implications for selection testing. Instead, he inserts "group-relations advocates" and "adjustment," as if the only reason personality tests were introduced was the persuasiveness of certain perhaps misguided social theorists.

Whyte then identifies aptitude with merit and "adjustment" with loyalty. "Adjustment" could refer to mental health or to organization identification. If it means mental health, then equating it with loyalty contradicts everyday observation. Many executives of unquestioned mental health change employers while some described as

neurotic cling to the first company that hired them.⁷

If "adjustment" means strong company identification, then this is *not* what personality tests measure. Moreover, top management does not want the strong identification of incompetent executives. Willard E. Bennett, head of management training for Cities Service, vividly describes the consequences of identification combined with ineptitude:

There is an awful finality about promotions into the managerial ranks. From the very first day, the promotee acquires a vested interest in the job. It is his to have and to hold. He may be criticized privately; his authority may be discreetly circumscribed; the size of his job may be whittled down; his incompetence may be carefully shielded from higher quarters of the organization. But he is rarely, if ever, demoted. . . .⁸

These tactics have been observed, described, and analyzed in detail by two University of Chicago social scientists.⁹

Pertinent also is an employee education study undertaken by the American Management Association at the request of the Fund for Adult Education.¹⁰ Joseph M. Trickett, author of the study, lists the attributes and capabilities which the executives of

⁷ Robert N. McMurtry, "The Executive Neurosis," *Harvard Business Review*, Vol. 30 (November, 1952), pp. 33-47.

⁸ Willard E. Bennett, "Master Plan for Management Development," *Harvard Business Review*, Vol. 34 (May-June, 1956), p. 76.

⁹ Norman H. Martin and Anselm L. Strauss, "Patterns of Mobility Within Industrial Organizations," *Journal of Business*, Vol. 29 (April, 1956), pp. 101-10.

¹⁰ Joseph M. Trickett, *A Survey of Management Development* (New York: American Management Association, 1954).

⁶ Perrin Stryker, and the Editors of *Fortune*, *A Guide to Modern Management Methods* (New York: McGraw-Hill Book Company, 1954), p. 70.

530 companies thought were desirable in a "well-developed" top management man and a "well-developed" front-line supervisor. No checklist was used; interviewers simply recorded spontaneously offered characteristics. Of sixteen characteristics reported for each group, "loyalty" appears in eleventh place for the supervisors and not at all for the top managers. Trickett adds that four times as many companies stress the importance of loyalty for their front-line supervisors as for top managers.

A more recent study by Lydia Strong shows similar results.¹¹ She reports the analysis of 201 questionnaires returned by top and middle executives. One of the items asked for three personal characteristics most needed by an executive. No checklist was used. The 600 written-in responses were grouped on the basis of similarity. Of seventeen categories named by at least ten respondents, "loyalty" ranked sixteenth.

In sum, there is reason to seriously question the dimensions ascribed by Whyte to the loyalty requirement. The fact that he never clearly defines its meaning makes evaluation difficult. He may have meant "conformity."

Executive Conformity Tests

Whyte states:

Neither in the questions nor in the evaluation of them are the tests neutral; they are loaded with values, organization values, and the result is a set of yardsticks that reward the conformist, the pedestrian, the unimaginative — at the expense of the exceptional individual without whom no so-

ciety, organization or otherwise, can flourish. (p. 182)

One of three procedures is usually employed in the personality testing of management candidates. In the first, tests are administered in the absence of both "worker" specifications and validation research. The tester simply describes the personality as it emerges from the test scores. In the second, worker specifications are available and the scores are interpreted in terms of the specifications. In the third, and the only one recommended by academic psychologists, the results are interpreted or treated in terms of research findings.

Where test results are reported in the abstract, company executives relate them to what they consider to be requirements for the position. Where specifications are employed, they are usually drawn by company executives. Where validation research is employed, favorable scores will be associated with those characteristics prominently possessed by previous successful occupants of the contemplated or related positions.

The test itself, contrary to Whyte's statement, is neutral. For example, a candidate scores high on introversion. In the first procedure, the tester simply reports this fact to company executives. If they think introversion will militate against success, the finding is a strike against the candidate. Similarly, in the second procedure, if the executives provided the tester with specifications, and in them called for extroversion or ambiversion, the introversion score is interpreted unfavorably in the tester's report. Finally, if introversion was

¹¹ Lydia Strong, "Man and Manager: An Executive Profile," *Management Review*, Vol. 45 (October, 1956), pp. 871-87.

shown by validation research to correlate negatively with success in the contemplated or related positions, the score is treated negatively.

In the first two cases, it is obvious that company executives, and not the test or tester, determine the "value" of a given score. But what of the third, i.e., when the interpretation rests on validation evidence? The answer remains the same except the connection is less obvious. If company executives, particularly those near and at the top, do not appreciate introversion, the chances that an introverted executive will be considered successful by his superiors are substantially reduced. Some introverts may "compensate" in the minds of their superiors by outstanding performance in nonsocial areas and thus still draw a favorable over-all rating. In general, though, one would expect more of the introverted executives to be unfavorably than favorably rated. When the psychologist validates his personality tests — i.e., when he analyzes trait scores to see how well they distinguish the better from the poorer-rated executives — introversion will probably be found associated with poor ratings.

Now, it is probably true that high introversion, independence, and originality scores will hurt executive candidates in various companies around the country. This is *not*, however, because the companies use the same tests or the same psychologists. Rather, it is due to the commonality of certain contemporary management values. These values and some of their hypothesized correlates and consequences comprise the core of *The Organization Man*. A more scholarly historical

treatment may be found in Reinhard Bendix's *Work and Authority in Industry*.¹²

Bendix labels the totality of these values the "managerial ideology" and contrasts it with the "entrepreneurial ideology" of earlier industrial times. He traces to the 1920's the emergence of the "well-rounded personality," "human-social skills," and the "human relations" approach — all intrinsic to the managerial ideology — as significant management values.

For the conception of "the manager" which emerged during the 1920's was that of the man who did his work extremely well, but "half" of whose work consisted in the skillful handling of others.¹³

We have seen that during the 1920's and 1930's, adaptability and skill in human relations were praised rather than effort and competitive drive in the struggle for survival.¹⁴

Riesman draws a similar conclusion in more general terms:

People, therefore, become the central problem of industry. This does not mean that modern developments of the older revolutions in tooling, the machine process, and factory organization come to a halt. . . . However, the newer industrial revolution which has reached its greatest force in America . . . is concerned with techniques of communication and control, not of tooling or factory layout.¹⁵

Whyte himself states that "by the time of the first World War the Protestant Ethic had taken a shellacking from which it would not recover" (p. 22).

Obviously, the ideological context in

¹² Reinhard Bendix, *Work and Authority in Industry* (New York: John Wiley and Sons, 1956).

¹³ *Ibid.*, p. 301.

¹⁴ *Ibid.*, p. 308.

¹⁵ David Riesman, *The Lonely Crowd* (New Haven: Yale University Press, 1950), p. 132.

which executive personality testing often occurs preceded the testing by many years. Moreover, this ideology reaches young executives well before they take any selection tests:

Many responsible members of university faculties are genuinely concerned . . . with the passion for conformity exhibited by young men planning business careers. They already dress right, they have carefully orthodox political ideas from their freshman year on, and by the time they are sophomores, they're already cultivating the art of the soft answer. . . .¹⁶

To condemn personality tests as conformity tests is to condemn most executive selection procedures used by any management pervaded by the managerial ideology or Social Ethic or second industrial revolution. Goetzinger analyzed the factors which campus interviewers found most "irritating" in college seniors.¹⁷ Among them were "lacks sincerity," "evasive regarding self," "tries to bluff," and "arrogant." These items reflect the new values. An interview with such an interviewer is, in no small way, a "test of conformity." Should interviewing therefore be condemned as a selection procedure?

Selection procedures are merely management decision-making instruments. Management makes and probably has always made its personnel decisions within the context of its particular values. This is quite different from saying the values are intrinsic to the instruments.

¹⁶ Sloan Wilson, "The Poster in the Window," *Management Review*, Vol. 45 (September, 1956), p. 789.

¹⁷ Charles S. Goetzinger, "An Analysis of Irritating Factors in Initial Employment Interviews of Male College Graduates," *Dissertation Abstracts*, Vol. 14 (1954), p. 1795.

Proof of the neutrality of personality tests is that they could, and in some cases doubtless do, serve the Protestant Ethic. Competitiveness, individualism, imagination, perseverance, and so on, are traits that available personality tests measure or are designed to measure. In many cases the individualistic virtue is simply the devalued end of scales in current use. Would Whyte condemn personality tests as "loaded with values" if they were used by a multi-valued management to select multi-valued individuals? Or perhaps equal proportions of individuals typifying each Ethic? To object that this could not be done with personality tests now in use is to misunderstand the nature of the tests.

Molding Executive Personalities

Whyte declares:

Even when the man who should have looked elsewhere slips through, the [test] profile will be self-confirming. For the [test] profile molds us as well as chooses; it is, as Sears puts it, a statement of "the kind of behavior we have found to be desirable." If he is going to get ahead, let alone survive, the man is going to have to adjust. Several years of give and take, and the organization will have smoothed him out. . . . (p. 195)

"Molding" is a basic characteristic of group process and has nothing to do with psychological tests. It has frequently been observed and reported in its more dramatic manifestations. In his Park Forest analysis, Whyte himself provides the following example of one aspect of suburban molding:

"We have learned not to be so introverted," one junior executive, and a very thoughtful and successful one too, told me. "Before we came here we used to live pretty much to ourselves. On Sundays, for

instance, we used to stay in bed until around maybe two o'clock reading the paper and listening to the symphony on the radio. Now we stop around and visit with people, or they visit with us. I really think we've broadened." (p. 394)

An extreme and pathological case in point occurred in the Nazi concentration camps at Dachau and Buchenwald. Bruno Bettelheim, a prisoner himself, relates how the majority of men imprisoned for their opposition to the Nazi regime eventually changed to the point where they (1) voluntarily criticized the efforts of American and British newspapers to expose camp atrocities, (2) attempted to imitate the dress of their Gestapo guards, and (3) tortured to death fellow prisoners who resisted the Gestapo. According to Bettelheim, a prisoner had reached the final stage of personality adjustment when Gestapo values became truly his own.¹⁸

A more recent and relevant study by Lieberman demonstrates the effect on attitude of a role change. A plant-wide attitude survey, conducted the year before the role change, gave a measure of union or management sympathy of each rank-and-filer. Independently of these measures, certain of the men were selected to be stewards and others were made foremen. Follow-up interviews showed the stewards to be significantly more pro-union than they had been as rank-and-filers while the foremen had become significantly more pro-management. Furthermore, when some of the men returned to

rank-and-file status, their union-management attitudes reverted.¹⁹

Nor do tests determine the dimensions of the mold itself. What the mold shall be is largely determined by the cumulative decisions of those in authority. Thus, the Sears mold is a reflection of selection and appraisal decisions antedating the testing program by years if not decades. The only relation the tests bear to the mold is that of translator. They translate into technical and numerical terms the personality philosophy or values held by top management and expressed continuously in its executive personnel decisions.

The criticism here is similar to that registered earlier. Value changes in executives occur in a direction and/or to an extent disapproved by Whyte. Personality tests are used in such a setting. Therefore, he holds personality tests at least partly to blame. Again it seems fair to ask whether Whyte would complain about "molding" were the mold to his specifications. In either case, tests are incidental.

Invalidity for Executive Selection

Whyte states:

Not in failing to make the tests scientific enough is the error; it is, rather, in the central idea that the tests *can* be scientific. They cannot be, and I am going into quite some detail in this chapter to document the assertion. (p. 182)

To show a test is valid, scores must be related to subsequent behavior of the people tested. Examine the "validation"

¹⁸ Bruno Bettelheim, "Individual and Mass Behavior in Extreme Situations," *Journal of Abnormal and Social Psychology*, Vol. 38 (1943), pp. 417-52.

¹⁹ Seymour Lieberman, "The Effects of Changes in Roles on the Attitudes of Role Occupants," *Human Relations*, Vol. 9 (1956), pp. 385-402.

evidence for many tests, however, and you will find they consist chiefly of showing how closely the average scores for the particular test come to the average scores of somebody else's test. (p. 189)

Whyte drew heavily here on weapons and ammunition abundantly available in the professional literature. In fact, two of the nation's foremost psychologists publicly nodded approval of Whyte's thesis. Professor J. P. Guilford, past president of the American Psychological Association, told a meeting of the American Management Association that "there has been much misuse of personality inventories" and that "the resulting evils have been dramatically set forth by Whyte. . . ." ²⁰ Professor Robert L. Thorndike, past president of the Psychometric Society, told the same group that genuine personnel testing "doesn't mean any of the approaches that were so effectively — and, I believe, justifiably — lambasted by William H. Whyte, Jr." ²¹

Despite the source of his material and the endorsements he received, Whyte's charge of invalidity warrants review. To begin with, the second excerpt gives the impression that personality tests used in management selection possess no more validity than test makers found when they compared their tests with earlier ones. Whyte singled out the Bernreuter Personality Inventory as a test which psychologists themselves have seriously questioned. It is true that

Bernreuter (1) built his test largely with items borrowed from earlier and unimpressively validated tests, and (2) validated it by determining how well it predicted the scores obtained by subjects on the previous tests. It is also true that psychologists found the test highly vulnerable to faking and have downgraded it as a selection device. Finally, it is true that serious doubts were raised whether particular scales of the test measured what their labels said they measured.

Nevertheless, it is wrong to conclude that this test and the many like it are invalid (or valid) for personnel purposes. In personnel work, test validity is defined in terms not of accuracy of *description* but of accuracy of *prediction*. The crucial question is not whether a test measures what it is said to measure or whether it correctly describes certain traits or even the whole man. The crucial question is whether the test can accurately predict a criterion of job success (e.g., proficiency, tenure, satisfaction). Validity, in short, is relative — relative to specific criteria in specific settings.

Notice that Guilford and Thorndike in their endorsements refer to "misuse" and "approaches." They are not talking as much about *tests* as they are about *validation* — or rather the lack or faulty execution of it. They are not saying necessarily that personality inventories are invalid for personnel purposes (though granted there is much professional dissatisfaction on this score). They *are* saying that very frequently such tests are employed without any or only the poorest notion

²⁰ J. P. Guilford, "Is Personnel Testing Worth the Money?" *General Management Series No. 176* (New York: American Management Association, 1955), p. 62.

²¹ Robert L. Thorndike, "Who Will Be Successful Ten Years From Now?" *Personnel Series No. 163* (New York: American Management Association, 1955), p. 3.

of how well the tests predict success criteria.

Evidence that Whyte is misleading may be found in a report by Deryck Adamson of the Shawinigan Water and Power Company of Montreal. His company's problem was to identify management potential in young graduate engineers. Among other things, they tested the engineers with a trial battery, put them through management training, established on-the-job success criteria, and — after a modest number had been in a regular assignment at least five months — compared test scores of the better and poorer job performers. One of the tests being used was the Bernreuter. At least two of its scales significantly distinguished the high and low groups. Adamson writes:

There is little evidence, for example, to show that the B2-S scale of the Bernreuter Personality Test actually measures "self-sufficiency." The important point is that the B2-S or self-sufficiency scale measures a factor which determines whether or not *a recent engineering graduate will be successful when placed in the Staff Development Training Course in the Shawinigan Water and Power Company.*²² (Italics added)

The fact that sub-scores of the Bernreuter seem to possess validity for this particular Shawinigan situation tells nothing about the test's validity for other problems, even at Shawinigan. It might well be useless for the overwhelming majority of personnel purposes. This, however, would have to be determined empirically.

²² Deryck Adamson, "Shawinigan Water and Power Company," in *Selection of Management Personnel*, Vol. 2 (New York: American Management Association, 1957), p. 105.

It is interesting that although Whyte flatly asserts in the first excerpt that personality tests *cannot* be scientific, he borrows the following scientific principle from psychological authorities:

As top psychologists point out, a really rigorous validation would demand that a firm hire all comers for a period of time, test them, seal away the tests so the scores would not prejudice superiors, and then, several years later, unseal the scores and match them against the actual performance of the individuals involved. This has rarely been so much as attempted. (p. 190)

The question naturally arises whether Whyte would accept a "really rigorous validation" as science. He does not hesitate to criticize, and rightfully so, less than rigorous procedures. Does this mean he subscribes to proper validation as science despite his belief that the tests being validated cannot be scientific? What, for instance, would be his reaction to the Shawinigan use of the Bernreuter?

Overgeneralizing Group Results

Whyte says:

Comparisons have been made between groups that have been tested — for example, a group considered productive may be found to have had an average score on a particular test higher than that of another group less productive. The average of a group, however, tells us very little about the individuals involved. Invariably, some of the people in the "best" group will have lower test scores than some of those in the "poor" ones. (p. 191)

Here Whyte is essentially correct. In fact, psychologists have stressed time and again the difference between predicting what percentages of a specific group will succeed and fail, and estimating the probability that a specific

individual with a specific score will succeed. An illustration may be taken from the Aviation Psychology Program. Although stanines of one and two were early declared unacceptable by AAF authorities, some of these scorers had successfully completed advanced training. Psychologists would agree that it was exceedingly difficult to know whether any given low-scorer would be the exception to the predominant failure pattern of his stanine group. The adoption of cutoff or exclusion policies invariably involves injustice to certain individuals.

Whyte fails to point out, however, that error and injustice apply to *any* predictive procedure. In fact, they probably apply even more to the prediction techniques Whyte does approve: studying past performance ("the single most valuable indicator of how he will perform in the future") and personal interviewing (combined with past performance, "the key" to executive selection) (p. 200). Any selection aid is a predictor and as such can and should be analyzed for its "false positives" and "misses."

The comparative ease of statistical check-ups of selection procedures has perhaps caused certain of us to neglect such considerations as these: (1) the performance of a trainee in a training course is a predictive element, and can be treated in the same manner as an aptitude test; and (2) a preliminary requirement for an applicant, such as high school graduation, is a predictive element, the effectiveness of which can be checked by statistical procedures.²³

Of all executive candidates who acquit

themselves well in personal interview, a certain proportion will fail if hired. Likewise, of all candidates rated low in the interview, a certain proportion will (or would) succeed.

A University of Michigan project indicates how many candidates are probably erroneously placed in each category by interviewing.²⁴ The project evaluated different procedures for predicting success in the Veterans Administration graduate training program in clinical psychology. Interviewers predicted first on the basis of reading the graduating senior's credentials file (undergraduate transcripts, recommendations, personal history form, correspondence), then on the basis of this reading plus a one-hour interview with the senior. In a variation, interviewers predicted first from an examination of the credentials file, psychological test scores, and an autobiography, then predicted again after a two-hour interview with the student. All predictions were correlated with performance ratings obtained three years later.

For all practical purposes, there was no improvement in prediction. The interviews might just as well not have been held. What gives these findings decisive impact are the facts that the interviewers were all qualified psychologists, many were professionally prominent, and the profession in which they were predicting success was their own.

These results suggest that even under unusually favorable conditions, there is at least as much error in predicting from interview as in predicting from

²³ Marion W. Richardson, "Effectiveness of Selection Devices," in *Handbook of Applied Psychology*, Vol. 1 (New York: Rinehart and Company, 1950), p. 192.

²⁴ E. Lowell Kelly and Donald W. Fiske, *The Prediction of Performance in Clinical Psychology* (Ann Arbor: University of Michigan Press, 1951).

past performance. Median validity for all criteria predicted on the basis of past performance (credentials file) alone represented about a 3 percent improvement over pure guessing. At this level of validity, the proportions of those who are rated high but perform low and vice versa are very substantial.

In the executive situation, successful performance in Position X is often, if not usually, assumed to predict success in Position Y. Whyte is hardly alone in his recommendation. It represents common, perhaps too common, policy. Mabel Newcomer, for example, found that 58 percent of a sample of chief executives in 1950 had served as vice-president; this contrasts with 35 percent of a 1925 sample and 13 percent of a 1900 sample.²⁵ When analysis is confined to chief executives who were promoted from within the same company, the 1950 figure becomes 76 percent. The trend toward increasing bureaucratization is apparent. Vertical mobility at all levels of bureaucratic organization is based partly on the assumption of high correlation between performances at successive levels.

This assumption may and in fact should be tested for every pair of levels for which it is made. In other words, the effectiveness of prior performance as a predictor can and should be determined statistically. A rare published example is Donald Campbell's finding on Navy officers showing that present Fitness Reports correlate insignificantly with former Fitness Reports.²⁶

²⁵ Mabel Newcomer, *The Big Business Executive* (New York: Columbia University Press, 1955), p. 109.

²⁶ Donald T. Campbell, *Leadership and Its Effects Upon the Group*, Research Mono-

As long as management is engaged in estimating executive success, there *must* be error, regardless of the estimating methods. And the error often takes the form of hurting individuals. But while error itself is inherent in management forecasting, its size is not. Through their potentiality for reducing the error of estimate, personality tests are also a potential agent for reducing injustice to the individual.

The Ethical Problem

Whyte says that the personality testing of executives is unethical.

The moral basis of testing has been tabled in this discussion, but it is the paramount issue. Were the tests truly scientific, their effectiveness would make the ultimate questions more pressing, not less. Is the individual's innermost self any business of the organization's? Our society has taught him to submit to many things; . . . But there is a line. How much more must a man testify against himself? The Bill of Rights should not stop at Organization's edge. In return for the salary that the Organization gives the individual, it can ask for superlative work from him, but it should not ask for his psyche as well. (p. 201)

The question in this case, being one of ethics, is for each individual to decide. Concern may be felt, however, that Whyte's stirring eloquence has led some people to a premature conclusion. There is a considerable body of empirical evidence — none cited by Whyte — which strongly suggests that "superlative" executive performance today requires personality characteristics that conform to current ideology. This is no

graph No. 83, *Ohio Studies in Personnel* (Columbus: Ohio State University, Bureau of Business Research, 1956), p. 34.

different from the statement that "superlative" executive performance a century ago required characteristics conforming to the entrepreneurial ideology. Personality characteristics dictated by today's values often displace and perhaps just as often supplement former requirements. The new requirements fall primarily within the interpersonal or social relations sphere of personality.

Preliminary note should be taken of Whyte's synonyms for "personality," "taking a personality test," and "giving a personality test." They become, in turn, "innermost self," "testify[ing] against himself," and "ask[ing] for his psyche." The connotation is of inquisition and brainwashing. The present writer believes that inquisition and brainwashing are unethical in the extreme. That, however, is not the issue. The issue is whether personality testing — i.e., the use in executive selection of professional personality, vocational interest, attitude, and value tests — is unethical.

Two main types of evidence will be submitted. The first type contains findings that directly or indirectly connect personality factors with executive jobs, executive failure, and executive success. The second type contains information and argument that Whyte's approved selection procedures — past performance and personal interviewing — are suffused in common usage with personality material. After this presentation, a broader condemnation that Whyte probably intended, namely, that personality analysis in any form is unethical, will be examined.

Personality in Executive Performance

First, there are a few findings from management job analysis. Much of the rank-and-file aptitude testing of the past several decades has been rooted in job analysis. As job description became worker specifications, selection tests were often adopted or developed to measure specified worker attributes. Management job analysis has been much slower in adoption than rank-and-file. In a recent review of the subject, Milton Mandell writes that systematic studies of the executive job are rare.²⁷ The reluctance of business executives to have their own jobs analyzed is undoubtedly a major factor.²⁸ Perhaps this is the reason most of the available studies have been performed on military personnel.

Preston reports a study in which a Protestant Ethic virtue — "acceptance of personal responsibility" — proved to be critical for successful performance as a junior Air Force officer while "proficiency in supervising personnel" (developing teamwork, looking out for subordinates' welfare) — a Social Ethic component — proved critical for Air Force colonels and generals.²⁹

Stogdill, Wherry, and Jaynes analyzed naval administrative performance

²⁷ Milton M. Mandell, "The Job of the Executive," in *Selection of Management Personnel*, Vol. 1 (New York: American Management Association, 1957), p. 210.

²⁸ Dale Yoder, *Personnel Management and Industrial Relations* (4th ed.; Englewood Cliffs, N.J.: Prentice-Hall, 1956), p. 332.

²⁹ Harley O. Preston, *The Development of a Procedure for Evaluating Officers in the United States Air Force*, Research Notes No. 1 (Pittsburgh: American Institute for Research, 1949).

and found that eight major activities accounted for most duty time. Four of the activities are built upon interpersonal relationships: public relations representation, coordination, personnel administration, and professional consultation.³⁰ Stogdill, Scott, and Jaynes discovered that among other differences, the higher-ranked a Navy officer is, the less time he will spend on technical and professional duties, and the more time on public relations, outside contacts, and conferences.³¹

Fleishman learned that, in general, the differences in work patterns between naval officers and industrial executives are no greater than the differences within either group. The executives did spend more time consulting outsiders.³²

Thomas Mahoney and Thomas Jerdee found that eight functions can account for the following average segments of time of 241 Minnesota business managers: supervising, 25 percent; planning, 20 percent; coordinating, 15 percent; evaluating, 12 percent; investigating, 11 percent; negotiating, 10 percent; staffing, 5 percent; and repre-

senting, 2 percent.³³ Supervising, coordinating, and negotiating — heavily interpersonal functions — alone account for half the time spent by a typical manager in this group. Just as Stogdill, Scott, and Jaynes found that higher-ranked Navy officers spent more time on public relations and outside contacts, Mahoney and Jerdee found twin peaks in “representing” and “negotiating” associated with middle and top management positions.

Drucker states that the chief executive's job requires three distinctive characters: the “thought man,” the “man of action,” and the “front man.”³⁴ Research thus far confirms the role of the “front man” and suggests that the role grows rapidly from middle to top management. Informal observation reveals that some leadership positions predominantly involve public relations. Specifications for such a “worker” would seem necessarily to include personality items. In terms of job analysis, then, “personality skills” become as vital to executive performance as mechanical and clerical skills are to rank-and-file jobs.

Second, there are findings of studies seeking to determine the causes of executive failure. Gaudet and Carli, for example, submitted a checklist of intellectual and personality characteristics to over 200 top executives with the request that they fill in the questionnaire for *one* man they appointed

³⁰ Ralph M. Stogdill, Robert J. Wherry, and William E. Jaynes, “A Factorial Study of Administrative Performance,” in R. M. Stogdill, C. L. Shartle, and others, *Patterns of Administrative Performance*, Research Monograph No. 81, Ohio Studies in Personnel (Columbus: Ohio State University, 1956), pp. 39-104.

³¹ Ralph M. Stogdill, Ellis L. Scott, and William E. Jaynes, *Leadership and Role Expectations*, Research Monograph No. 86, Ohio Studies in Personnel (Columbus: Ohio State University, 1956).

³² Edwin A. Fleishman, “Differences Between Military and Industrial Organizations,” in *Patterns of Administrative Performance*, *op. cit.*, pp. 31-38.

³³ “New Way to Look at Managers' Jobs,” *Factory Management and Maintenance*, Vol. 115 (December, 1957), pp. 110-11.

³⁴ Peter Drucker, *The Practice of Management* (New York: Harper and Brothers, 1954), p. 168.

to an executive or potential executive position and who subsequently had to be separated, demoted, or transferred because of failure in that position.³⁵ The respondents were to select and rank the three out of twenty listed characteristics that most contributed to the appointee's failure. They were also asked to indicate whether they thought knowledge or personality deficits were more responsible for his failure. The seven characteristics chosen most often were lack of breadth of knowledge, inability to delegate responsibility, inability to analyze and evaluate, lack of personnel and administrative knowledge, inability to judge people, inability to cooperate with others, and inability to make decisions. Interpersonal traits seem to be involved partly or wholly in three of the seven factors. The responding executives themselves believed 4 to 1 that personality lacks were more responsible for failure than knowledge lacks.

Laird reports Lapp's study of reasons for sales executive failure.³⁶ Among the reasons discovered, the following four strongly suggest personality factors, three of the interpersonal variety: failure to delegate, failure to obtain subordinate's respect, failure to obtain cooperation of other executives, and failure to study and prepare for the job.

Henry, after analyzing projective personality test data of many executives, concluded that "the large per-

centage of failure among fancy-titled, high-paid executives is not due to breakdowns of skill. . . . It is due, in general, to inadequacy of personality development."³⁷ *Dun's Review and Modern Industry* introduced a case study of one frequent type of executive failure:

The executive of inadequate personality is one of the costliest, most difficult problems facing industry today. An over-simplified definition of this executive is one who shows a combination of apparent talents and characteristics indicating a productivity level considerably higher than that which he actually attains. Observed over years, he may occasionally produce at mid-level or above, but his production is inconsistent and its average low.³⁸

Third, there are findings of studies seeking to determine factors in executive success. Brooks analyzed the management behavior of 96 executives (superintendent through vice-president) to determine whether any specific activities distinguished the men rated "excellent" in over-all leadership effectiveness from those rated "below average."³⁹ Many activities proved to be sharply distinctive and most of them fell partly or entirely in the interpersonal sphere. As seen by their own superiors, top-rated executives permitted subordinates to share in decision-making, maintained coordination of subordinates' work, made full use of

³⁵ Frederick J. Gaudet and A. Ralph Carli, "Why Executives Fail," *Personnel Psychology*, Vol. 10 (Spring, 1957), pp. 7-21.

³⁶ Donald A. Laird, "Why Executives Fail," *Management Methods*, Vol. 13 (November, 1956), pp. 30-33.

³⁷ William E. Henry, "Executive Personality and Job Success," *Personnel Series No. 120* (New York: American Management Association, 1948), p. 14.

³⁸ "The Executive of Inadequate Personality," *Dun's Review and Modern Industry*, Vol. 66 (August, 1955), p. 45.

³⁹ Earl Brooks, "What Successful Executives Do," *Personnel*, Vol. 32 (November, 1955), pp. 210-55.

the skills and abilities of subordinates, showed improvement in their leadership ability, and regularly informed subordinates of their progress. As seen by their subordinates, top-rated executives made it pleasant to be in their group, regularly informed subordinates of their objectives and progress toward them, helped subordinates improve their job performance, facilitated exchange of information within the group, and informed members of activities in other departments.

Argyris reports a series of ten personality characteristics he has observed as common in successful executives: exhibited high frustration tolerance, encouraged full participation, continually questioned themselves, understood laws of "competitive warfare," expressed hostility tactfully, accepted victory with controlled emotions, were never shattered by defeat, understood necessity for limits and unfavorable decisions, identified themselves with groups, and set realistic goals.⁴⁰

Grant, in a study of 97 insurance company division managers, found "skill in dealing with others" to be one of five major effectiveness factors.⁴¹ When Strong polled executives as to the characteristics they thought were most needed by an executive, only one item was submitted by a majority of the respondents: "ability to work with people."⁴² Flory and Janney, psychol-

ogists with the Rohrer, Hibler and Replogle consulting firm, cite "emotional control" and "skill in human relations" among the five factors they have found to be crucial in executive effectiveness.⁴³

Personality in Whyte's Predictors⁴⁴

Joseph Litterer surveyed 47 companies which have carefully developed executive appraisal programs.⁴⁵ About 80 percent used nothing more scientific than specific-trait rating scales. In a similar survey, Mahoney, Dohman, and Jerdee found more attention paid to performance measures than did Litterer; nevertheless, personal characteristics tended to be more frequently emphasized.⁴⁶ Despite recent progress, management science has not yet provided cold, impersonal measures of many aspects of executive performance.

McMurry, like Whyte, searches past performance to gauge an executive candidate's prospects, but he does so by looking for evidence of Protestant Ethic personality traits.

In general, he must at least have demonstrated on previous assignments (a) ability to accept heavy responsibility without undue anxiety, (b) capacity to make sound judgments under pressure without panic or undue aggressiveness, and (c) an active,

⁴³ Charles D. Flory and J. Elliott Janney, "Psychological Services to Business Leaders," *Journal of Consulting Psychology*, Vol. 10 (May-June, 1946), pp. 115-19.

⁴⁴ Prior performance and interviewing.

⁴⁵ Joseph A. Litterer, "How 47 Companies Measure Their Executives," *Personnel Journal*, Vol. 36 (July-August, 1957), pp. 97-100.

⁴⁶ Thomas A. Mahoney, Wallace Dohman, and Thomas Jerdee, "Applying Yardsticks to Management," *Personnel*, Vol. 33 (May-June, 1957), pp. 557-62.

⁴⁰ Chris Argyris, "Some Characteristics of Successful Executives," *Personnel Journal*, Vol. 32 (June, 1953), pp. 50-55.

⁴¹ Donald L. Grant, "A Factor Analysis of Managers' Ratings," *Journal of Applied Psychology*, Vol. 39 (October, 1955), pp. 283-86.

⁴² Strong, *loc. cit.*, p. 885.

creative, dynamic orientation toward his environment (that is, must not merely have passively adapted to it, but have shaped and molded it to meet *his* needs). Many other qualities—for example, ability to get along with others—are useful, but it is the above three that are the indispensable requisites of executive success.⁴⁷

Whyte seems cognizant that psychologists have frowned upon personnel interviewing for decades. He recommends improvement. But more to the point, Whyte may be asked why he thinks that interviews get at anything less personal than personality tests. In the Armstrong Cork Company, for instance, management interviewing is regarded as an excellent means of evaluating "such evasive qualities as integrity, honesty, level of aspiration, and similar attributes."⁴⁸ General Mills describes the role of its supervisory screening interview: "Probing at this stage should be concerned with basic qualifications and interests . . . reasons for aspiring to a management job; long-range ambitions; reaction to the nomination; candidate's efforts (or lack of them) to prepare himself for supervision; general personality and attitude."⁴⁹

Hariton advises that in a management "depth" interview, "the man's whole life history can be explored, including his early home background, education and training, work experience, activities and interests, and aims and goals."⁵⁰ He looks to the interview

to make up for limitations of psychological tests in measuring "such factors as personality, character, and drive."⁵¹

Dartnell Corporation's *Tested Techniques of Personnel Selection*, developed by McMurry, includes these items in its patterned interview for executive selection: How did you get along with your father? mother? brothers and sisters? Who handled the discipline? How did you meet your wife? What difficulties or serious arguments have you had with your wife? What kinds of people rub you the wrong way? Has it ever been necessary for you to borrow from a small-loan agency? In your last position, how much money were you able to save?⁵²

From these descriptions of practice in analysis of past performance and interview material, it is apparent that these predictive devices are often used for personality analysis. Whyte attacked personality analysis only in psychological testing. Presumably, however, he would attack it in the other situations as well. If, then, it is personality *analysis* Whyte condemns as unethical and not merely personality *testing*, a major implication which emerges from the foregoing research survey should be made explicit.

The survey suggests that the more that is known of a candidate's personality, the less is the possibility of misjudging him for an executive position. The *more* the candidate's personality is exposed in advance (as all now accept that his mental abilities should be), the *less* he himself will be exposed to the

⁴⁷ McMurry, *loc. cit.*, p. 42.

⁴⁸ "Armstrong Cork Company," in *Selection of Management Personnel*, Vol. 2, p. 48.

⁴⁹ "General Mills, Inc.," in *Selection of Management Personnel*, Vol. 2, p. 175.

⁵⁰ Theodore Hariton, "The Intensive Interview of Managerial Candidates," in *Selection of Management Personnel*, Vol. 1, p. 486.

⁵¹ *Ibid.*

⁵² Robert N. McMurry, *Tested Techniques of Personnel Selection* (Chicago: Dartnell Corporation, 1955).

later possibility of job failure. Conversely, the *less* his personality is exposed in advance, the *more* exposed he will be to later failure (as used to be the case when mental abilities were ignored). From this view, Whyte's conception of what *is* ethical becomes equatable with greater exposure to failure. Whyte's ethic, in other words, may be defined in terms of protection of the individual's right to fail.

This interpretation is entirely compatible with one of the major themes of *The Organization Man*. Whyte sees "social engineering" and self-determination as antithetical. To the extent that the goals of social engineering — reduction if not elimination of conflict, frustration, failure — are realized, the individual's right to determine his own destiny is undermined. According to Whyte, organizational or societal benevolence is purchased at the price of individual choice. Freedom to succeed is freedom to fail. (Conceivably, the real excitement of the American Dream was not in its happy ending but in its suspense.)

There are two kinds of individual freedom involved here. One concerns freedom to *enter* a situation where one might succeed or fail. In the present context, this refers to executive employment opportunity. No freedom has been lost here. Under social engineering as under the Protestant Ethic, the hiring prerogative is still the employer's. Whatever right the individual has had curbed by social engineering, the right to dictate his own selection is not among them.

Actually, a case could be made that the capable individual has increased his

freedom in this respect. Social engineering involves the continuous replacement of arbitrary, irrelevant, subjective specifications with specifications of demonstrated validity. More and more, selection procedures must be empirically justifiable. The entrepreneurial right to hire at will is being succeeded by the management imperative to hire scientifically. In this sense, social engineering takes from the employer and gives to the individual.

The second kind of freedom concerns choice of success or failure *once employed*. Here again no individual freedom has been lost. A scientifically selected executive is just as free to make of his job what he will as is his associate who was hired through family influence. Again a case could be made that, on the average, he is *more* free to choose. Having been scientifically screened, he is more likely than his associate to possess the requisites for success. Only a man capable of success is truly free to choose failure. Among the inept, failure is more often imposed from without.

Conclusion

Contrary to the impression possibly left by Whyte, executive personality testing did not initiate, nor is it essential to, the desire of employers to select executives of kindred value systems, the practice of analyzing personalities of prospective executives, the Social Ethic as a management appraisal yardstick, the incidence of error in prediction of executive success, and the conformity process in executive groups. Nor, in fact, was executive personality testing the beginning of *employee* personality

testing. Whyte fails to even mention that operative workers, especially sales personnel, and supervisory management have been taking personality tests for decades.

Personality testing is a decision-making tool. It may be and undoubtedly is used by managements of varying value systems. Like interviewing and performance appraisal, it may appear to assume the values of the management using it.

Despite its undeniable immaturity and limitations, personality testing by

professional psychologists can often contribute to the evaluation of executive-relevant characteristics. There is evidence that newer techniques not discussed by Whyte, e.g., objective laboratory-type tests, leaderless group discussion, situational testing — will increase the frequency of such contribution. In any case, professional testing of potential executives compares favorably by scientific and ethical standards with many of the informal selection procedures that have long been practiced.

Relationship of Population Changes to Economic Prosperity¹

V LEWIS BASSIE

*Director, Bureau of Economic and Business Research
University of Illinois*

THERE IS widespread acceptance of the idea that population is not only the basis for economic growth but protects the economy against declines. The optimists have incorporated this in recent years in a kind of "new era" creed.

There are two premises for this line of thinking. First, population increases are a strong economic stimulus; second, the upward trend of population is invariant, so that the contribution of population change is always and in all respects positive. From these premises the conclusion is inevitably reached that increased population is a bulwark of economic prosperity.

Unfortunately, this inspiring thesis is not so soundly based as it seems. Both of the premises are faulty and the conclusion is therefore erroneous.

Population is not entirely an exogenous factor. The economic and demographic variables are intertwined and interact upon each other. Economic well-being affects the rate of increase

in population; an extended decline in incomes and employment affects both marriage and birth rates adversely. Conversely, changes in the population trend affect the pace of economic activity; a slowing in the rate of population increase reinforces the declining phase of the business cycle.

It is with the second of these relationships that the present article is concerned. Two aspects of the effects of population change on economic prosperity are considered. The first consists of the consumption effects — those that operate directly through consumer income and expenditures. The second consists of the induced-investment effects — those that operate through the demand for capital goods of various kinds.

Consumption Effects

To determine the effects of population changes on consumer expenditures, population must be considered jointly with other factors. Most attempts to estimate those expenditures have utilized some form of the consumption

¹ Paper presented at the Midwest Economic Association meetings, Des Moines, Iowa, April 17-19, 1958.

function. The simplest form of this relationship was Keynes's propensity to consume, which stated that as income increased expenditures would also increase, but not to the full extent of the increase in income. Subsequent research revealed various deficiencies of this thesis, and many variants of the consumption function have been derived in attempting to remove these deficiencies.

The most important deficiency of the relationship between expenditures and income alone is that it ignores trend effects: Long-term data covering almost a century of past experience show that savings have remained a relatively constant proportion of income. Deflated annual data for the years since World War I also show that there is a persistent upward trend in expenditures which keeps savings low as income expands.

Looking at these trend effects from the short-term point of view, they are not large. Hence, income may still be regarded as the most important determinant of expenditures over one-year intervals. Nevertheless, the trend component is not insignificant. It may be estimated as in the range of \$1.3 billion to \$2 billion a year, depending on the assumptions made. This would mean that over a ten-year period, trend factors affecting consumption contributed \$13 billion to \$20 billion in increased expenditures.

There are, of course, other factors than income and population affecting expenditures. There are, for example, other sources of financing; expansion of consumer credit has played an important role for more than a decade. There are also other real factors, such

as houses and automobiles, that stimulate related kinds of expenditures. However, a consumption function that relies solely on income and population will produce results in analyzing the separate effects of these two variables which are much the same as a more complicated relationship that attempts to take other variables into account.

Applying this kind of analysis to the three main groups of consumer expenditures — that is, durable goods, nondurable goods, and services — reveals that the trend effect of population is positive with respect to the last two components but negative with respect to the first. This difference in the direction of population effects on expenditures bears further explanation.

The basis for the positive relationship of some expenditures to population is clear. Babies become consumers of food, drugs, and medical services even before they are born. Afterwards they are consumers of necessities like everyone else. Food expenditures are directly related to the number of mouths to feed; haircuts to the number of heads to trim; medical services and drugs to the number of cases of sickness to cure. Over a wide range of nondurable goods and services, therefore, population must be regarded as a significant variable in determining expenditures.

All these items used as illustrations of the population effect are of the kind known to be insensitive to income changes. However, there are other products of this character which are apparently not dependent upon population as such but upon other trend factors to which their growth is related. Thus gasoline and auto repair services are

dependent upon the stock of cars in use; and expenditures for household operation upon the number of households requiring such items. Here then are positive contributions to nondurable and service expenditures which take the form of trend expansion but need not be attributed to population as such.

In the case of durable goods the contribution of the trend factors is negative. One explanation of this, looking at the problem simply from the point of view of consumers' income and behavior is that durable goods expenditures tend to be restricted by increased requirements for day-to-day necessities: For any given income, a larger population would have to concentrate its expenditures more completely on meeting current needs.

This explanation, however, ignores the relationship between the existing stock of durable goods and the services those goods provide. A better explanation, which takes account of the demand for ultimate services, indicates that the stock of durable goods in existence exerts a negative influence on new production. Although it is impossible to go into detail here, the basis for the phenomenon has been established in terms of the specific stock-flow relationships involved. The stock enters into the equations representing such relationships with a negative coefficient. Perhaps this effect can best be summarized by saying that the accumulation of stock in use represents increased saturation of the market. Again, however, it is the stock involved and not population that makes the difference.

If this kind of analysis is applied to savings, the trend factor is again nega-

tive. In this case, the stock to be considered is the accumulation of financial assets. Various writers have identified this as an appropriate type of controlling relationship. As wealth builds up, the incentive to accumulate more through current savings decreases. The stock-flow relationship in this case is not so secure as some of the others, since the direct connection between the stock and flow is lacking: There is no penalty on accumulating an excess of wealth, and no loss is incurred if asset holdings fall off in relation to expenditures. Still, the "Can't take it with you!" philosophy acts to restrict the current rate of saving as wealth rises.

The upshot of this analysis is that there are a number of trend factors affecting parts of the consumption total. In addition to population these represent accumulations of various kinds of assets, such as houses, autos, and financial assets. Now it so happens that all these trend variables are intercorrelated, and for this reason, all may be represented by population alone. Hence, population may serve as a measure of the combined trend effect in a statistical consumption function. In fact, relying on population gives better statistical results than any of the others. In a correlation for durable goods, for example, population results in a better fit than autos or houses, or some kind of average of the two.

Population may therefore be taken as an indicator of the non-income factors affecting expenditures. To put a favorable interpretation on its contribution, the gross positive shifts in nondurable goods and expenditures may be attributed to it and the negative trend

components for durable goods ignored. This gross contribution amounts to about \$2 billion annually. The net of all trend factors if the negative components for durables were included would be about a third less. If portions of the trend components for nondurables and services were allocated to other trend factors, the gain attributed to population would again be reduced.

Taking the larger figure as the population effect, the \$2 billion annual increment amounts to about one-half of 1 percent of gross national product. It is therefore not a strong stimulant on a year-to-year basis, but a relatively weak stimulant. It accounts for only a fraction of the full employment rate of growth of about 3 percent a year.

The importance of this contribution to economic activity is that it is always positive and cumulates over time. The trend of population has been irreversible if not invariant. However, its effects cannot hold consumption steady in recessions because the contribution of income to year-to-year changes in expenditures is far more important. Even the contribution of consumer credit has been greater in most postwar years. Furthermore, to the extent that the rate of population growth may slow, its contribution will dwindle correspondingly. Thus, in a period of recession it provides only a lessening offset to the more important decline deriving from the short-term dependence of expenditures on income.

Induced Investment Effects

In addition to these direct consumption effects, there are almost innumerable

derivative effects of population growth on the need for capital goods of various kinds. Optimistic analysts have pointed out that these indirect effects are far more important than the direct effects on consumer expenditures. This, however, is a statement with ominous overtones, because it holds good only in the prosperity phase of the cycle, and not in the depression or early recovery phases.

In making an analysis of these effects, it is again necessary to go back to the basic connection between population growth and its derived demands: There is an induced investment effect because people need houses to shelter them; they need community facilities of all kinds — schools, hospitals, water works, and recreation facilities — to maintain modern ways of living; and they need factories to produce the goods they buy as well as shopping centers to buy them from.

These and other indirect investment expenditures are primarily determined, not by the total head count, but by the rate at which it is increasing. For example, if the number of school-age children is increasing at a certain rate, new classrooms must be provided at a corresponding rate.

In other words, the results in this case are dependent upon an accelerator type of relationship. When population is growing fast, investment is stimulated. When population growth slows, investment is depressed. When the rate of population increase is cut in half, as it was from the mid-1920's to the early 1930's, investment is severely depressed. Thus, the change in rate of population

growth becomes part of the regular cyclical mechanisms by which investment and incomes vary.

During the boom, when population is growing fast, it stimulates a rapid expansion in all these related forms of capital formation. In this period of high activity, the pace of investment in facilities of these types gets stepped up beyond the level necessary to meet stable requirements for long-term growth.

How this happens in a postwar boom is easily understood. At the end of the war there are deficiencies in capital stocks of all kinds. These represent backlogs of accumulated demand. At the same time, high rates of wartime saving have reduced private debt to a minimum and have resulted in large accumulations of liquid assets. These financial assets combine with credit facilities to make the community's demands effective. It is an unusual opportunity and business rushes in to take advantage of it.

Even in less extraordinary circumstances, the same condition is bound to develop, though not to the same degree. In the trough of the depression, investment activity is so low that the slow growth of population catches up with existing facilities. When the need for facilities is perceived, demand is moving out ahead, and the early efforts to expand keep demand moving ahead. Thus, shortages develop and the only way to eliminate these shortages is to push the rate of expansion up above the current needs of a growing population. This represents an imbalance in rates of growth that is necessary to correct the deficiencies in stocks of facilities; but later the imbalance in rates

of growth will also have to be corrected.

As a minimum, the rate of expansion has to be stepped up to a point corresponding with the maximum rate of growth in population. This would be most favorable for stability, but expansion would have to be held at that rate for some time after the peak of population increase had passed. At best, therefore, the whole mechanism becomes poised for a setback at the peak of the boom.

This can be seen clearly in the case of housing. As a first comment on this particular item, it may be noted that houses are required primarily by families rather than by individuals. This means that downward pressure on housing can occur before the increase in population slows, because marriages tend to drop off ahead of births.

During the upswing, the rate of family formation is high because it has a backlog of unmarried adults to draw upon. There is also "undoubling" of families as income increases; families that had been living together make separate arrangements and set up additional households. Therefore, homebuilding expands beyond the rate required by family formation. This means that it has to come down sooner or later, and when it does, it tends to lower both employment and new family formation.

But family formation drops off of its own accord after the backlog of unmarried adults is used up. Marriages then depend solely upon the cohorts of young people just coming of age. Another backlog — that of families living doubled — is also worked off in a few years of high incomes and rapid home-

building. The demographic factors thus lose their capacity for providing annual demands for new housing at the peak rate. They can no longer support the investment boom. To prevent excesses, building must be cut back.

The decline, interacting both ways, becomes cumulative. We are in such a decline today.

Construction of most types of community facilities lags behind housing by a year or two. This kind of construction therefore has a sustaining effect in the early stages of the decline. That is the position of state and local government expenditures today. Subsequently they too tend to be curtailed, deepen-

ing the depression and retarding recovery.

When the consumption and the induced-investment effects of population changes are added together, the stimulus to over-all activity disappears early in the downswing. Subsequently the substantial decline of outlays of the investment type exceeds the dwindling contribution to consumer expenditures, so that the net contribution of population during the depression phase becomes negative in an absolute as well as in a relative sense. This development leaves no basis for the conclusion that the growth of population can effectively sustain the economy against the decline.

The Effect of a Common Market on the Relative Growth of European Economies¹

THEODORE LANE

Graduate Fellow, University of Washington

THE PRESSURES of World War II and its aftermath cogently emphasized the need for economic cooperation among the nations of Europe. Responding to these pressures, the European Iron and Steel Community and the Organization for European Economic Cooperation came into existence. It soon became apparent, however, that without an increase in intra-European trade, only limited progress could be made. From this conclusion came the idea of a "Common European Market." Such a market would consist of all the nations of Europe that wished to join. These nations would agree to eliminate all tariffs and trade restrictions with respect to each other and thereby effectively create free trade among themselves.

The creation of such a free trade area is expected to lead to increased

multilateral trade within the area and (it is hoped) initiate an era of sustained economic growth among the member nations. In effect, therefore, the Common Market would establish an economic "United States of Europe."²

The purpose of this paper is to examine the relative economic growth effects the establishment of a Common Market would have upon the economies of the member nations.

I.

Economists have long recognized the beneficial effects of multilateral trade. Whether couched in the terms of the Ricardian classical theory of international trade³ or in a more vigorous man-

² It should be realized, of course, that the Common Market will create an economic United States of Europe only with respect to its trade and commerce. So long as countries retain their own tax systems and their monetary sovereignty, a true "economic" union cannot be said to exist.

³ Professor Taussig's *International Trade* (Cambridge: Harvard University Press,

¹ The author has received the benefit of criticisms and comments from Professors George Kleiner, Hans Brems, and Howard S. Piquet.

ner without the classical assumptions,⁴ there has usually been agreement that multilateral trade will provide the greatest benefit for all nations involved. Although it may be argued that a single nation may benefit from the imposition of trade restrictions,⁵ still it can benefit only at the expense of the nations against which it discriminates. If all trading nations adopt trade restrictions (seeking individual benefit at the expense of each other), the benefits derived by any single nation will be canceled and there will be a net loss to all nations concerned. In this sense, nations compete with others in much the same way that oligopolists perform in the absence of a collusive agreement, and military warfare may eventually replace bellicose economic relations.

Alternatively, increased multilateral trade leading to increased specialization among nations will allow each nation to concentrate on the production of those goods and services in which it is able to achieve the greatest productivity at the lowest cost. Consequently, an

1927) is perhaps the most complete contemporary statement of the classical theory.

⁴See Paul A. Samuelson, "The Gains from International Trade," *Canadian Journal of Economics and Political Science* (May, 1939); and Tibor Scitovsky, "A Reconsideration of the Theory of Tariffs," *Review of Economic Studies*, Vol. 9 (Summer, 1942). Both articles are reprinted in *Readings in the Theory of International Trade* (Philadelphia: Blakiston Company, 1950).

⁵Scitovsky, *Readings*, p. 358.

optimum utilization of resources for maximum productivity will occur. Through the mechanism of trade, an exchange of commodities and services will take place, and a net increase in the real income of all countries involved may be expected.

The one limiting circumstance is the assumption that the nations involved have varying comparative costs which will allow for increased productivity, given the advent of increased specialization. If this assumption is dropped, no benefit would be derived by the nations among which the increased volume of trade would occur, since the levels of output, employment, and income would show no net change. However, any assumption as to the equality of factor costs need not concern an analysis of modern European countries. Therefore, for Europe, in the words of Professor Samuelson, "as a result of trade larger . . . amounts of every commodity can be secured with smaller . . . amounts of every productive service."⁶

Thus far, the analysis argues for the conclusion that the establishment of a Common Market in Europe (with the increase in trade that would result) would lead to net increases in the aggregate volumes of output, employment, and income among the member nations. If such increases are distributed proportionately among the member nations, on the basis of their existing growth

⁶Samuelson, *Readings*, p. 251.

rates, the relative growth of any one Common Market nation, with respect to all other nations in the bloc, would be constant. If, however, the increases in aggregate output, employment, and income resulting from the creation of the Common Market are distributed in any other manner, the relative growth of the member nations will be affected.

Before seeking to examine the growth distribution among European economies, the factors which control the growth of any nation should be determined. But for purposes of this paper, the domestic factors which determine a country's growth rate (such as population, resources, and innovations) will be considered constant.⁷ The only variable in this analysis will be the growth which is induced in any country by its international trade sector, since it is the isolation of this phenomenon which is essential if one is to evaluate the effects of the Common Market upon relative growth. Obviously, this static analysis is only a preliminary to the dynamism of intra-European trade.

The rate of capital accumulation within a country determines that country's domestically induced growth. The

extent to which that growth is transmitted to the nations with which it trades, however, is determined by that country's propensity to import (where a country's propensity to consume is defined in terms of the consumption of domestically produced goods and services). The higher a country's import propensity, the greater will be the growth it induces in the economies of its trading partners as its national income increases. To illustrate this point, consider (in isolation) two trading nations, A and B. If A has an import propensity of .15, an increase in A's national income of \$100 would induce an increase in B's national income of \$15. The \$15 rise in B's income, induced by A's accumulation, would have additional effects upon B's economy to the extent of the imports times the multiplier of B's marginal propensity to consume domestically produced goods and services. If A's import propensity is doubled to .30, the impact of a \$100 increase in A's national income upon B's national income will also be doubled (to \$30 times B's constant multiplier). Consequently, in seeking an answer to the question of the distribution of growth effects that would accrue to the bloc of nations involved in the Common Market, the vital factor in such "growth distribution" would be the member countries' propensities to import.

However, two qualifications must be

⁷ It will be further assumed (both for simplification and to highlight the variable we are concerned with—increased trade) that the import propensities, consumption propensities, and capital coefficients of the Common Market countries will remain constant.

made to this analysis. First, the analysis runs in terms of marginal propensities to import, since the primary interest of the paper is the growth impact of additional increments to each country's national income and the effects these will have upon the national incomes of all other countries involved. The use of marginal import propensities seems justified by the fact that the analysis is concerned not with the over-all growth of European economies, but rather with the relative growth effects that will arise from an increase in the aggregate level of European output resulting from the Common Market. At present, the growth effects on European economies arising from international trade are determined by the trading nations' average import propensities. As national incomes increase, however, any changes in growth resulting from trade (i.e., any changes in relative growth, given the assumption of the constancy of domestic growth factors) will be determined by marginal import propensities.

The second qualification is imposed by the manner in which economic growth is calculated. A country's growth rate is a numerical coefficient and bears no relation to the dollar value of the country's growth. Where economies of vastly dissimilar size exist, a comparison of growth rates will have little significance for analyzing growth transmission. As an illustration, take country A with a gross national product of \$1,000 as

compared with country B with a GNP of \$25. To say that country B's growth was 100 percent (for a given period of time) while A's growth for the same time period was 20 percent would mean little, since A's GNP has increased by eight times that of B (\$200 to \$25). Consequently, B's marginal propensity to import would have to exceed A's by more than eight times for the dollar value of its increased imports to exceed A's. Where, however, the countries concerned have economies of comparable magnitudes (as do most of the proposed Common Market countries), the static analysis is appropriate and this limiting case can be ignored.

II.

Since the magnitudes of the import propensities of the trading countries determines the transmission of growth between them, nations with high import propensities will be the most generous in transmitting their domestic growth. Conversely, low import propensity countries will transmit the least growth to the nations with which they trade. Over a period of time, the countries with low propensities to import will grow most rapidly relative to the high import propensity countries. This latter conclusion follows from the fact that these nations will receive a greater growth stimulus from their foreign trade sector than they transmit. The low import propensity countries will consequently become the

Table 1. Marginal Propensities to Import

Country	Chang (1924-38)	Polak (varying dates)	Neisser-Modigliani		
			1928	1932	1935
Denmark.....	.54	.73			
Finland.....		.93			
Germany.....	.24	.23	.30	.29	.30
Netherlands.....		.48			
France.....	.31				
Norway.....	.47	.67			
Sweden.....		.28			
Switzerland.....		.12			
United Kingdom.....	.29		.32	.28	.28

Sources: Tse Chun Chang, "International Comparison of Demand for Imports," *Review of Economic Studies*, Vol. 13 (2), No. 34 (1945), p. 61; J. J. Polak, *An International Economic System* (Chicago: University of Chicago Press, 1953), pp. 77 ff.; and Hans Neisser and Franco Modigliani, *National Incomes and International Trade* (Urbana: University of Illinois Press, 1953), p. 92.

economically most developed countries of the Common Market bloc. Since industrially developed nations usually have lower import propensities than primary goods producers, it would be expected that the countries that are now most highly developed will maintain their economic dominance under a Common Market.

This does not mean that the absolute rate of growth of high import propensity nations will be adversely affected. Quite the contrary, since the absolute growth rates of all member nations will increase. The growth rates of the low import propensity members, however, will show the greatest proportionate gain.

In seeking to apply these conclusions, the first step is to examine the import propensities of the countries for which data are available.

Different methods of computation produced different results, as the three

studies cited in Table 1 indicate. The high correlation between the Neisser-Modigliani study and the Polak study (including nations not cited) argues for the use of the latter's data. Accordingly, except for France and the United Kingdom, Polak's data will be used.

As expected, the industrial countries, being able to satisfy the major portion of their own domestic demand for finished goods, have the lowest import propensities. Discounting Switzerland, which has little economic bearing on Europe (in real terms), the three lowest import propensity countries are the United Kingdom, Sweden, and Germany. The highest import propensity countries — Denmark and Finland — are primarily agricultural economies. Although no data are available for Italy, the structure of its economy would indicate rather strongly that it is also a relatively high import propensity country.

The data support the initial hypothesis. The analysis revealed that the most highly industrialized countries have the lowest import propensities and that low import propensity countries will tend to grow faster than their high import propensity trading partners. It must therefore be concluded (given constant import propensities) that although the establishment of a Common European Market would stimulate the growth of all member nations, the countries that are initially the most industrially developed will grow the fastest. In the long run then, the disparity between the national incomes of European nations (with respect to one another) will increase in favor of the present high-income nations.

The assumption of constant import propensities, however, may not hold true. By increasing specialization, the Common Market may bring about upward revisions of the import propensities of member countries. But if all countries are affected in a similar manner, such that the relative magnitudes of their import propensities remain fairly constant, the foregoing analysis is still valid.

Another extreme would be that the increased specialization and trade accruing from the establishment of a Common Market would cause a virtual equalization of all member countries' import propensities. In this case, industrial nations that are also natural re-

source producers would be able to meet part of their domestic demand for raw materials with domestic production. This factor would give these countries lower import propensities than the specialized, non-resource-producing industrial nations or specialized primary producers. The growth advantages, discussed earlier, of a country's having a lower import propensity than its trading partners (when they are in a free trade bloc) would consequently accrue to these nations. For countries that are producing under a system of comparative advantage, the magnitude of such domestic resource production for industrial countries would be very small, and it can be concluded that the differential growth rates of the Common Market nations would be almost solely determined by internal factors in each country.

Given changing import propensities brought about by the creation of a Common Market, a far more likely situation (than the two cited earlier) would be that the disparity between the import propensities of industrial and primary producing nations would be narrowed but not eliminated. The existence of transportation costs, however, would allow for the existence of a periphery of marginal industries in each nation which can hang on because of this differential in cost. But the differential cannot be considered sufficient to attract risk capital. Therefore, such pe-

ripheral industries cannot be expected to develop in countries where they do not already exist, i.e., primary producing countries. Consequently, industrial producers will still retain a greater diversification in their productive schedules than will primary producing nations. The import propensities of industrial nations may well increase but they will remain lower than in the less developed areas. The conclusions of the original static analysis will be mitigated; but the dominant characteristic will still hold true.

Finally there is the question of the advisability of the inclusion of the United States in the Common Market—for the marginal propensity to import of the United States is only about .05.⁸ This is less than one-quarter the marginal propensity to import of Germany, which has the lowest import propensity of any major European nation. In light of the static analysis, one could argue strongly against the inclusion of the United States in any free trade bloc, since it would provide such slight stimulus to the potential growth from multi-lateral trade accruing to less developed areas. However, it is with respect to the inclusion of the United States in the Common Market that the limitation of

the second qualification (economies of comparable magnitudes) is most apparent. Since the United States economy is so much greater than any European country, the low propensity to import is greatly offset by the great size of its GNP vis-à-vis the Common Market economies. The exception of the United States, with its low import propensity and large GNP, draws attention to one great limitation of the static analysis, despite its apparent general validity.

III.

In conclusion, a Common Market for Europe would probably increase Europe's self-sufficiency and would therefore lower its collective import propensity vis-à-vis the rest of the world. This would substantially improve Europe's collective balance-of-payments position (as well as its growth rate) at the expense of non-Common Market nations. As an attempt to increase the volume of intra-European trade, the Common Market will probably be successful. It will also probably increase the growth rates of the member nations. But in so doing, it seems likely to maintain the disparities in national income between Europe's industrially developed countries and its primary goods and agricultural producers (although these disparities may be lessened, they will not be eliminated).

The conclusions do not assert that industrial countries will necessarily have

⁸ Hans Neisser and Franco Modigliani, *National Incomes and International Trade* (Urbana: University of Illinois Press, 1953), p. 92; and J. J. Polak, *An International Economic System* (Chicago: University of Chicago Press, 1953), p. 156.

a higher growth rate or per capita income than primary producing nations. They argue that the transmission of growth effects will be greater from primary producing to industrial producing nations than they would be in the converse situation. Therefore, the magnitude of a nation's growth induced from its international trade sector will be greatest for industrial countries. This growth factor, however, can be a negative as well as a positive coefficient and therefore may not always be welcomed by its major recipients.

Technological Change and Unemployment

GEORGE W. WILSON

Assistant Professor of Transportation, Indiana University

SINCE THE Luddite riots in England between 1810 and 1812, workers have typically reacted to technological change with fear, suspicion, or outright violence and have sought to hedge or control it in the interests of job security. On the other hand, management has frequently tended to introduce laborsaving devices with little regard for the workers involved or with rather unconvincing assurances that all will be well. Both views are understandable and natural—the workers seek job security, the managers seek lower costs. However, it is apparent that the problem is primarily short run in nature; that is, unemployment due to substantial labor productivity increases will, in the long run, be corrected by a certain degree of resource mobility and/or government compensatory policies. In the meantime, however, the short-run adjustment process creates the major difficulties and probably warrants some kind of alleviating assistance.

But not all technological changes create even short-run unemployment. It is the purpose here to investigate the conditions under which a technological change which involves a reduction in

per unit labor costs will or will not cause unemployment.

The Static Model of Technological Unemployment

To isolate the key variables, assume that a single firm has been producing and selling a particular product at the rate of K units per time period. Assume that the employment required to produce the K units is M man-hours. Thus, labor productivity is K/M (i.e., output per man-hour). Assume that a laborsaving device is introduced which raises labor productivity by n percent. The new productivity then becomes $K/M(1+n)$. The question that must be answered is, How will the change in technology influence the volume of the firm's employment? Obviously, if the firm maintained the same volume of output (K) per time period, employment would fall.¹ The factors which will affect the volume of production or sales must therefore be ex-

¹That is, the number of man-hours needed to produce K units when productivity is $K/M(1+n)$ equals $M/(1+n)$ which is less than M if n is greater than zero.

amined.² If costs of production decline, it is likely that a firm will seek to expand sales if there is anything to the profit maximization assumption at all.³ It is, of course, possible that a firm would stand pat and be content to reap an extra profit per unit of sales in which case workers are correct in their attitude toward the impact of labor-saving devices upon employment. At the same time, one may still question the traditional reaction pattern of attempting to restrain or prevent the technological change.

In general, however, it seems reasonable to assume that the firm will seek greater sales by attempting to raise its demand schedule through sales effort or by reducing the price and moving along an assumed elastic demand. If per-unit variable costs are constant up to the limits of physical capacity, as appears to be the more typical case, then presumably the optimum profit volume of sales expenditure will have been made prior to and independently of any reduction in production costs. It is true that with lower production costs the incentive to expand sales is greater. However, it would seem that if optimum sales effort had already been achieved, little scope would exist for significant shifts in product demand to result from this approach. In short, sharply diminishing returns to sales effort are assumed in the present context either because the

more readily persuaded buyers have already been "sold"⁴ or because rival firms will retaliate with enhanced advertising of their own. Hence, the present analysis is limited to the case of an increase in sales induced by lowered prices.⁵

Assume the firm elects to reduce the price of the product affected by the increase in efficiency, say by p percent. The impact upon sales depends upon the elasticity of demand (e). With a price concession of p percent, the percent increase in sales is given by ep . The new total sales or output therefore becomes $K(1 + ep)$. To find the employment impact of the change in technology, divide the new volume of production by the new output per man-hour, $K/M(1 + n)$. Thus, the employment needed to produce the new output is:

$$\frac{K(1+ep)}{K/M(1+n)} \text{ which equals } M \left[\frac{(1+ep)}{(1+n)} \right].$$

The change in employment (ΔM) is simply the new needed employment minus the previous employment before the laborsaving device and the price reduction or, algebraically:

$$\begin{aligned} \Delta M &= M \left[\frac{(1+ep)}{(1+n)} \right] - M \\ &= M \left[\frac{(1+ep)}{(1+n)} - 1 \right]. \end{aligned}$$

² Sales and output will be used synonymously throughout. It will be assumed that inventories remain constant.

³ Unless, of course, the elasticity of demand is unity or less than one. If price discrimination is feasible then this exception is not relevant.

⁴ See Norman S. Buchanan, "Advertising Expenditures: A Suggested Treatment," *Journal of Political Economy*, Vol. 50, No. 4 (August, 1942), p. 537.

⁵ For simplicity, terms of sale, delivery dates, functional discounts, and the like are ignored, though these may be quite significant. It is, however, extremely difficult to say anything general about these non-price items and hence they are neglected.

To interpret: if ep exceeds n , the expression in brackets is positive, hence employment rises; if ep is less than n , the expression is negative, hence employment falls; finally, if ep equals n the expression equals zero, which indicates that employment is unchanged.

This rather simplified model indicates that the magnitudes of e , p , and n will determine the employment impact of technological change. Since the change in productivity will usually be given, and in any event, is largely an engineering or technical phenomenon, an economic assessment of employment changes requires an examination of p and e relative to a given n .

Effect of Price Reduction

To maintain the previous volume of employment (M), ep must equal n . First, examine the economic feasibility of substantial reductions in price and the limitations to such price reductions. If labor constitutes a small proportion of total costs, then a rise in labor productivity alone will not permit much reduction in price and the burden of preventing unemployment rests upon demand elasticity. If labor costs represent a large proportion of total costs, an increase in labor productivity alone will permit a fairly substantial price decline. Generally, if L represents the ratio of labor cost to total cost, a given rise in labor productivity alone (n percent) will reduce total costs by Ln percent. Assuming that average total cost is reasonably constant for the range of output in question, unit costs will fall by Ln percent. As a maximum, one could expect prices to fall by Ln percent.

In many cases, however, a technological change raises the efficiency of other factors besides labor and this reduces unit costs by something more than Ln percent. On the other hand, such innovations may require more capital per unit of output and possibly higher fixed charges which would reduce costs by less than Ln percent. The precise impact on the efficiency of non-labor resources depends upon the nature of the innovation, the type of resources used, and the type of product. In short, it depends upon specific circumstances and generally it does not appear that much can be said about the principles involved. Hence, for the balance of this discussion, the impact on the efficiency of non-labor factors is ignored, although the required modifications can readily be made should this omission prove unrealistic in specific cases.⁶

It can be concluded, therefore, that the maximum price reduction must always be less than the change in labor efficiency due to the technological change because the ratio of labor costs to total costs is always less than one; that is, labor is not the only resource employed. This means that to prevent any reduction in employment, the elasticity of demand facing the firm must be greater than one. That is, to have the employment change equal zero, it is necessary that ep equal n or that e equals n/p . But since p must necessarily be less than n (because L is less

⁶ That is, to Ln add an amount (x) indicative of reduced costs per unit of non-labor resources. Then, $Ln + x$ would give the maximum economical price reduction. Conversely, x should be subtracted from Ln if non-labor costs per unit increase.

than unity), the required elasticity must exceed one.

Alternative Elasticities

What is the demand schedule facing the individual firm affected by the change in technology? The nature of the firm's demand schedule is generally analyzed under four major types of market structure, the distinctions among which are usually based upon the number of firms in the industry and whether or not product differentiation exists. At one extreme there is the situation of so many firms in the industry producing a homogeneous product that the action of any single firm has only an imperceptible impact upon the market. Generally, in this situation, each firm takes the market price as given and merely adapts to this price, which is established through the independent, profit-maximizing actions of all firms relative to aggregate demand for the product. With such a perfectly competitive market structure, each firm can sell as much as it wishes at the going market price and output is restricted solely by cost considerations. At this market price, then, the firm's demand schedule is infinitely elastic. With perfect or adequate knowledge, should any firm adopt or develop a cost-reducing technique, this will be copied or adopted fairly rapidly either by new entrants or by existing firms; and the increased supply put on the market as a result of lowered costs will eventually reduce the market price. Whether or not labor employment in the industry will change depends entirely upon the elasticity of the market demand, the ratio of labor costs to total

costs, and the change in labor productivity, all factors clearly outside the discretion of the individual firm.

It will be noted that here labor employment in the market was stressed rather than employment by the individual firm. This procedure seems legitimate since the individual firm is so small that any reduction in employment at this level would be relatively insignificant and not of the magnitude typically associated with the phrase "technological unemployment." However, for the sake of completeness it should be mentioned that since the firm can make all the sales desired at the going market price, firm output will expand to the maximum, given any cost reduction, limited only by the new, ultimately rising costs rather than by declining prices. In the absence of perfectly competitive markets, declining prices put an additional limitation on the firm's output expansion.

However, few industries even remotely approximate the conditions requisite for perfect competition and the few that do are either regulated or sick, such as agriculture, bituminous coal, and with some needed qualifications, motor carriers; this is a rather interesting condition for the only market structure (i.e., perfect competition) which has traditionally been deemed automatically self-regulating in the public interest. Furthermore, it is a moot point whether the minimal profits under perfect competition and the probable speed of copying any innovation would be conducive to substantial technological improvements.

Turning to the other extreme, complete monopoly, the firm and the in-

dustry are one. Here the industry demand is the same as the firm's demand, and with one exception, the employment impact of a cost-saving innovation depends upon the same factors as in perfect competition. The price of a monopolist will not automatically fall. The monopolist may choose the "quiet life," as opposed to maximum profits, and hence maintain the price prevailing before the change in technology. This is especially true if the price has become standard and generally accepted within the industry in which the monopolist sells. On the other hand, if the extra profit opportunity is great (i.e., if n and L are large and e is substantially greater than one), some price reduction will probably be made. However, in such a monopoly position, the danger of making too much profit is always a restraining influence on pricing policy. Excessively high profits tend to invite substitutes or governmental investigations, both of which are highly disturbing to a quiet existence and may have adverse implications for the long-run profit position. Short-run restraint in this context may well be the prerequisite for long-run profit maximization. It seems probable that, though a price reduction *may* be made, it is unlikely to approach the maximum (i.e., Ln percent), and hence, employment will be adversely affected by the change in technology.⁷ It should also be noted

that under monopoly, entry into the industry is usually blocked, either naturally through economies of scale or artificially through control of strategic resources, patents, or deterrent practices. Unlike perfect competition then, any excess profits reaped through the price reduction will *not* be cut into by new entrants, a condition which tends to restrict employment more than perfect competition even if the maximum price reduction is made. In both the short and the longer run, the implication is that monopoly is more inconsistent with maintenance of employment in the face of technological change than perfect competition is.

However, like perfect competition, complete monopoly is rare. Even where one firm produces all of a single product, the existence of more or less closely related products puts certain limitations on the firm's discretion over price and/or output.

Turning to the intermediate market situations, monopolistic competition and oligopoly, the analysis is involved with industrial structures which encompass the majority of industries in the United States.

Monopolistic competition is a situation where there are numerous producers, each making a product of the same type or genus but where each firm produces a particular species or variety of the product. There is a high degree of product substitutability and a considerable volume of sales effort among firms. The fact that firms are numerous is taken to mean that if any individual firm chooses to reduce its price, the amount of business captured from each rival is so small

⁷ A monopolist who practices price discrimination is likely to have less unemployment resulting from technological change since he can reduce prices for new sales without affecting previous sales. However, considerations of "invitingly" high profits remain relevant here and the Robinson-Patman Act should not be neglected.

that there is little danger of retaliation. Assume that there are 101 firms each producing, say, 100 units of output per time period. If one firm, by lowering its price, should double its sales at the expense of its rivals and if the loss is evenly distributed among the competing enterprises, the loss to each of the latter is only 1 percent whereas the gain to the price-reducing firm is 100 percent.

A 1 percent sales reduction is unlikely to provoke retaliation to offset the initial price decline. The large number of firms makes retaliation to independent pricing decisions unlikely, and the existence of numerous close substitutes makes the firm's demand schedule highly elastic. Under monopolistic competition therefore, should one firm adopt a laborsaving technique, the maximum price reduction would probably be made; and it seems likely that with such a high elasticity of demand, the firm's employment would expand. If rival firms adopt the cost-saving innovation, results comparable with those of perfect competition will ensue, with the ultimate employment impact in the industry determined by the relative magnitudes of n , L , and the elasticity of the genus or market demand rather than the species demand.

The most interesting, relevant, and difficult market structure in which to analyze the effects of technology upon employment is that of oligopoly. This is distinguished from monopolistic competition by the relatively small number of producers, from which it follows that pricing policies are *not* made independently of the probable reactions of rivals. Assuming the previous example,

but reducing the number of firms involved in the market to four, a 100 percent increase in sales by one firm at the expense of the other three will cause a $33\frac{1}{3}$ percent sales reduction for each of the latter. Retaliation is not only likely but anticipated. This anticipation of retaliation to a price reduction is frequently enough to preclude the price concession in the first place, particularly where there has been a history of struggle to establish a "living" price or set of price relationships. Firms will be exceedingly careful about disturbing the uneasy peace by tampering with the price structure. In such a situation a form of price leadership (coercive or noncoercive) or some type of formula pricing is frequently relied upon to prevent the outbreak of "cut-throat competition." This is especially true where overhead costs are substantial and where some degree of excess capacity exists. These conditions are, indeed, partly responsible for the oligopolistic nature of the market structure. In such circumstances it is difficult to see how price competition can be expected, since it is not in the interests of the firms involved to compete on this basis.

Non-price competition, with some off-list, sporadic price concessions (probably to large buyers), is the best that can be expected unless the basic industrial structure is altered. Few people would be so sanguine as to expect business enterprises to behave in a fashion inconsistent with their own interests. Self-interest, even of the enlightened variety, is still the pervasive ethic of our society and is presumably not limited to the business community.

The implications for antitrust policy are obvious. That is, the antitrust laws have constantly striven to stimulate competition on a price basis. This is, indeed, the main reason for declaring price-fixing arrangements to be illegal *per se*. However, to the extent that the economy has developed a high degree of structural oligopoly, attempts to stimulate price competition are doomed to failure unless the market structure is changed. To try to encourage price competition under oligopoly, especially where substantial excess capacity exists, is simply to invite the firms to match revenue losses or commit oligopolistic suicide — an invitation unlikely to be accepted. A reluctance to tamper with market structures, therefore, nullifies a policy of promoting vigorous price competition in oligopolistic situations.

To return to the main theme, What is the likely response under oligopoly if one firm institutes a laborsaving device? In view of the probable retaliation to a price reduction, the response is most likely to be maintenance of the established price structure, which means that employment will be most adversely affected. Under the assumption of such retaliation, it is apparent that oligopoly is the market structure most inconsistent with maintenance or expansion of employment in the face of a laborsaving technique.

Of course, this conclusion is very general and there may be many instances of oligopoly where there is no assurance of retaliation. This is particularly true where no formula pricing and no strict price leadership by a non-innovating firm is involved. In such circumstances, if the innovating firm is

willing to take a chance that retaliation will not follow or will follow only partially or after a time lag, the temptation of the extra profitability of a price reduction may be too strong to withstand. While the analysis above does not preclude this type of behavior, it does not appear to be the most likely. Indeed, an innovating firm is likely to lease the patent for any new process to its rivals, in which case the variable production costs of the firms would be equalized once again. Depending upon the collective views of the industry demand, the firms *may* all lower prices and the employment impact would then depend upon the elasticity of the general demand for the product. In the absence of this possibility, however, prices under oligopoly tend to be more rigid than under other types of market structure and employment is therefore most likely to be adversely affected by technological change.

Implications of the Model

Labor unions are well aware of the employment consequences of changing technology. While there may be some disagreement as to the extent of oligopoly in the United States, it is apparent that most of the major durable manufacturing industries are oligopolistic in nature. Thus, substantial technological change is more likely to create serious short-run unemployment difficulties than it would if the economy were structurally different. The key to the problem is price rigidity. Under what circumstances can firms be expected to reduce prices to expand sales under oligopoly? Clearly, where there exists uncertainty as to the reaction of rivals.

The greater the uncertainty that rivals will retaliate, the greater the possibility that price concessions will be made. Thus, even under oligopoly, if formal or institutionalized pricing arrangements can be prevented or broken down by antitrust action,⁸ economic progress will create less short-run turbulence and industrial strife and will provide a peaceful milieu which, in its turn, should foster and stimulate further technological advance. If the trend is toward greater price rigidity, the short-run consequences of economic

⁸ A more appropriate and effective policy would be to change the oligopolistic structure as suggested above. However, the legal sanctity of property rights and a general unwillingness to disturb existing relationships precludes a widespread dissolution policy.

progress will be less desirable. In this event, the insistence of unions that they play an even larger role in shaping investment decisions will rise and with this, greater governmental "mediation" will ensue. Perhaps Lord Keynes was correct, though he spoke in a different connection, when he suggested that a "somewhat comprehensive socialization of investment" may be necessary. If there is a trend toward greater industrial concentration, the political necessity and social desirability of mitigating short-run unemployment difficulties due to technological change (which are enhanced under oligopoly) will require more governmental action, either of a positive or of a remedial nature.

The Impact of Automation on the Stability of Manufacturing Employment

JULIUS REZLER

*Assistant Professor of Labor Relations, Institute of Social and Industrial Relations
Loyola University*

TESTIMONY during recent congressional hearings on automation revealed the anxiety many people feel as to the effects of the so-called second industrial revolution.¹ Most witnesses readily acknowledged that in the long run, automation might result in a large increase in productive capacity. Some economists, however, as well as labor leaders, tended to emphasize the far-reaching effects automation will have upon individuals and social relations in the short run. As Professor Walter S. Buckingham, Jr., of the Georgia Institute of Technology, indicated: "[We] live in the short run, unfortunately, and that is where the potential dangers lie."²

¹ This discussion is intentionally limited to manufacturing. Although manufacturing employment is becoming a smaller and smaller percentage of total employment, it nevertheless occupies a key position in the economy. It alone produces capital goods. Consequently, a change in investment caused by automation would first affect manufacturing, especially those branches producing capital goods.

² U. S. Congress, Joint Committee on the Economic Report, Subcommittee on Eco-

As to the problems automation might create, some experts are concerned with the stability of employment in the segment of the economy that is most exposed to automation, namely, manufacturing. While realizing that automation would necessarily bring temporary technological displacement, they are more concerned with the stability of employment for those who will remain in manufacturing after the process of automation has been completed.

The question of stability of employment in automated industries has been obscured by conflicting statements issued by experts in automation. On one hand, some representatives of management contend that automation, in the final analysis, increases stability of employment. Ralph J. Cordiner, president of General Electric, has stated: "As automation [is] introduced . . . fixed costs go up. With high investment in machinery, industry has one more incentive to keep those machines running

nomie Stabilization, *Hearings, Automation and Technological Change*, 84th Cong., 1st Sess., 1955, p. 37.

as steadily as possible."³ This opinion is supported by John Diebold, management consultant and pioneer in automation: "... output will more likely be maintained, because of fixed capital charges. . . . Thus greater stability of employment is seen to be a likely consequence of automation."⁴

Some economists, and most of the labor spokesmen, disagree with this position. Professor Buckingham states: "The very increases in efficiency and technological progressiveness which automation brings are a potential threat to continued stability,"⁵ and Walter Reuther, president of the UAW, expresses his fear that "from the viewpoint of the national economy, the greatest problem posed by automation is the threat of violent fluctuations in employment and production. . . ."⁶

Since the problem of stability of employment has been intensified by automation and since there is disagreement regarding the effects it will have on the stability of employment, the purpose of this discussion is to examine the effects of automation on the stability of employment in American manufacturing industry. The analysis contends that employment stability will decrease as the degree of automation increases.

I.

Certain basic assumptions underlie the approach taken herein. First, it is assumed that although automation will reduce the labor force in the industries automated, a number of workers will

be retained for maintenance and operation of the machines. Second, regardless of the investment costs, even automated industries will need to maintain a functional relationship between the quantity of production and the effective demand, and consequently, production and employment will continue to be influenced by cyclical changes. Third, hiring and firing in the automated industries will continue under free market conditions and it is assumed that no legislative or union action will compel employers to retain workers.

Given these assumptions, automation will increase the instability of manufacturing employment in two main ways: first, it will widen the amplitude of business cycles; second, it will make employment more vulnerable to business fluctuations because of change in the composition of manufacturing.

The amplitude of business cycles will be widened in a number of ways. First automation represents a new technology, and revolutionary changes in the technology of production usually cause heavy fluctuations in business activity, as indicated by the innovation theory of Schumpeter. Recent events in the economic history of the United States tend to corroborate such theory. In the depression of the early 1930's, the American people paid a heavy price for the introduction of mass production after the first World War.

Second, automation means increasing investment and decreasing labor costs per unit of production. The higher the cost of investment, the more the prosperity of our economy depends on that portion of our income which is invested in capital goods. Professor Buckingham

³ *Ibid.*, p. 434.

⁴ *Ibid.*, p. 11.

⁵ *Ibid.*, p. 36.

⁶ *Ibid.*, p. 106.

notes: ". . . as we move into an area in which we must rely [on] an expansion of investment . . . our stability becomes more precarious, because we are relying for total spending on the spending of businessmen, on capital expenditures, which can be stopped at anytime."⁷ Finally, automation may increase cyclical instability by creating disequilibrium between production and consumption; while increasing considerably the capacity of production, large-scale technological displacement may reduce purchasing power and consumption so as to depress the spiral in the contraction period.⁸

These factors will tend to create instability of employment by increasing the amplitude of business cycles. The wider the amplitude of the cycle, the higher the amount of unemployment to be expected. However, automation not only widens the amplitude of cycles, but simultaneously makes manufacturing even more sensitive to business cycles by changing the composition of employment.⁹ Since this development

⁷ *Ibid.*, p. 40.

⁸ It has been suggested that automation may increase productivity in the consumer goods sector of manufacturing which in turn would lower costs and prices; an additional demand following lower prices may then more than compensate for the adverse effects of automation on employment.

The author feels, however, that even though automation will undoubtedly increase productivity, no important decline in prices will result from it. If we examine productivity-cost-price relationships in the past few decades, a definite trend is apparent for productivity gains to be absorbed, in general, by increases in wages and profits. There is no indication that there will be a reversal of this trend in the near future.

⁹ Composition of manufacturing employment is defined here as the relationship of

may represent the most important consequence of automation as it concerns the stability of employment, further analysis of its details is required.

The works of Carver, J. M. Clark, and Kuznets on the operation of the accelerator and multiplier principles suggest that the consumer and capital goods industries¹⁰ react quite differently to the fluctuations of business cycles. In general, employment and production fluctuate more in the capital goods industries than in the consumer goods industries during the course of a cycle. The depression of the early 1930's illustrates this. While average employment in manufacturing declined by 31 percent from 1929 to 1933, the rate of decline in the employment of the consumer goods sectors was 15 percent, and in the capital goods industries 51 percent.

Accordingly, it may be assumed that

employment in capital goods industries to that in consumer goods industries.

¹⁰ Capital goods industries are those which produce machines and equipment used in industrial and agricultural production. This study includes production workers employed in the following Standard Industrial Classification categories: 351, Engines and Turbines; 352, Agricultural Machinery and Tractors; 353, Construction and Mining Machinery; 354, Metalworking Machinery; 355, Special Industry Machinery; 356, General Industry Machinery; 357, Office and Store Machines and Devices; 358, Service-Industry and Household Machines (50 percent); 359, Miscellaneous Machine Parts; 361, Electrical Generating, Transmission, Distribution, and Industrial Apparatus; 363, Insulated Wire; 364, Electrical Equipment for Vehicles; 366, Communication Equipment (50 percent); 381, Laboratory, Scientific, and Engineering Instruments; 382, Mechanical Measuring and Controlling Instruments; 383, Optical Instruments and Lenses.

the inner stability¹¹ of total manufacturing employment depends on the portion accounted for by the capital goods industries. The higher the proportion, the more unstable manufacturing employment as a whole becomes.

Automation promotes instability of employment in the manufacturing industry by steadily increasing the proportion of the capital goods industries in total manufacturing over the long run. Automation means costlier machines and consequently requires more investment. Additional investment, however, increases the quantity of production and employment in the capital goods industries that produce automated machinery.

Since automation has been introduced at an increasing rate ever since the end of the second World War, the analysis of the composition of employment in the last decade should reveal some support for the claim that automation increases instability of employment.

Because of automation, the proportion of capital goods industries within manufacturing has increased by about 8 percent over the last decade (Table 1). Up to 1953 the absolute number of productive workers in capital goods increased faster than in the consumer goods industries. Since 1953 the absolute number of productive workers has

Table 1. Production Workers in Manufacturing, 1947, 1953, and 1956
(Thousands)

Year ^a	Total manufacturing workers	Workers in capital goods industries	Capital goods as percentage of total
1947....	12,795	1,692	13.2
1953....	13,833	1,922	13.9
1956....	13,061	1,868	14.3

^a In order to eliminate short-term effects of business cycles on the composition of manufacturing employment, data with the same cyclical status (i.e., peak years) are compared.

Source: Computed from employment data obtained from the Bureau of Labor Statistics, "Employment, Hours, and Earnings: Manufacturing Division," February, 1953; June, 1956; and August, 1957.

decreased less in capital goods than in consumer goods. In the future, it can be expected that this trend will accelerate to the same degree that the application of automation to manufacturing production processes is speeded up. As a result, the capital goods industries will probably employ a larger and larger proportion of the productive workers in manufacturing. Hence, if the employment in one sector of the manufacturing industry is less stable than the other, and this sector increases while more stable areas decrease, then manufacturing employment as a whole will become less and less stable. The steady increase in the proportion of production workers employed in capital goods industries makes total manufacturing employment less stable and more vulnerable to fluctuations in business activity.

II.

It should not be assumed, however,

¹¹ Inner stability or instability results from forces developing inside the economic system, such as changes in supply, competition, and employment, as opposed to external factors such as government action, union action, or war.

that this change in the composition of manufacturing employment began with the recent introduction of automation. In fact, the relative increase in the proportion of the capital goods industries is a secular trend occurring over at least the last sixty years. Automation is only the latest phase of the trend in the changing composition of manufacturing employment, as Table 2 illustrates.

Table 2. Production Workers in Manufacturing, Selected Years, 1899 to 1947
(Thousands)

Year ^a	Total manufacturing workers	Workers in capital goods industries	Capital goods as percentage of total
1899....	4,496	431	9.6
1909....	6,246	558	9.2
1919....	8,403	1,000	11.9
1929....	8,361	1,077	12.9
1937....	8,553	1,030	12.1
1947....	11,916	1,618	13.6

^a In order to eliminate short-term effects of business cycles on the composition of manufacturing employment, data with the same cyclical status (i.e., peak years) are compared.

Source: For the years 1899-1937, data computed by Solomon Fabricant on the basis of the Census of Manufactures. Capital goods industries in that study included the following: Foundry and Machine-Shop Products, Agricultural Implements, Office and Store Machines, Business Machines, Electrical Machinery, Engines and Tractors, Machine Tools, Machine-tool Accessories, Pumps, Textile Machinery, Gas Machines, Sewing Machines (50 percent), Professional Instruments, and Optical Goods. See *Employment in Manufacturing, 1899-1939* (New York: National Bureau of Economic Research, 1942), pp. 203-4 and 208.

For 1947, data computed by author on the basis of the 1947 Census of Manufacturing. Differences in the computation of data before and after 1937 are due to changes made by the Bureau of the Census for using the Standard Industrial Classification System after 1945. See U. S. Department of Commerce, *Census of Manufactures: 1947*, Vol. 1 (Washington: U. S. Government Printing Office, 1950), pp. 29-30.

The causes of this secular development are undoubtedly the basic economic and technological processes of mechanization, as labor and machinery are replaced by machinery of higher efficiency. As Solomon Fabricant states:

When we look at manufacturing in the aggregate we see that change in total factory employment is the net result of the shift of workers into new industries. . . Technological changes contribute to all these developments, for they are basic not only to the ebb of employment in mature and decadent industries, but also to the emergence and exploitation of new fields. Technological evolution is thus a factor in the hiring as well as in the firing.¹²

Since mechanization decreases the quantity of labor required per unit of output, the relative contribution of the consumer industries to total factory employment steadily declines. On the other hand, the rising production of machines and equipment increases the demand of the capital goods industries for additional labor for the long run and augments the relative contribution of these industries to total factory employment.

Mechanization, the basic underlying cause of change in the composition of manufacturing employment, has proceeded at different rates since 1899. Between 1899 and 1929, there was a period of increase in the relative contribution of the capital goods industries to total manufacturing employment, from 9.6 percent to 12.9 percent. Dur-

¹² Solomon Fabricant, *Employment in Manufacturing, 1899-1939* (New York: National Bureau of Economic Research, 1942), pp. 158-59.

ing that period the relative contribution of the capital goods industries to total manufacturing employment increased by 34.4 percent.

The period of intensive mechanization was followed by a decade of stagnation. The excess of labor, caused by the sharp decline in business activity, made mechanization less urgent after 1929. The latest phase of mechanization, known as automation, was initiated during World War II.

III.

Automation, as the latest phase of a secular trend in the changing composition of manufacturing employment, will continue to increase the relative contribution of the capital goods industries to total manufacturing employment. The intensity of the impact of automation and the degree of instability of employment depends mainly on two factors: (1) the speed with which automation is introduced into the manufacturing industry; and (2) the limits to its application in the various industrial branches. The congressional hearings on automation devoted much time not only to the problem of instability of employment created by automation but also to the speed of its introduction and the limits to its application.

The speed of the process of automation proves to be a somewhat controversial problem. Representatives of

management contend that "automation will not run wild because it has its own built-in controls."¹³ They argue primarily that many man-years are required to develop automated equipment and that the rate of automation will be decelerated by the need to train people in the use of the new machines. Furthermore, the amount of capital investment is exceptionally high and depends upon the ability of a machine to perform economically the job for which it is designed. Considering all these factors, management assumes that automation will take twenty years to be fully introduced into industries where it is applicable.¹⁴

Labor officials are more pessimistic concerning the speed of automation, seeing sufficient evidence to indicate that automation will spread rapidly in the coming decade. Competition and the drive for reduced production costs are compelling the introduction of automated equipment. The trade unionists cite the example of an article in a trade journal which revealed that twenty machine-tool companies said that automation will make twice as much progress in the next five years as in the past ten.¹⁵

Similar controversy is apparent over the problem of limits to automation.

¹³ *Hearings, op. cit.*, p. 380.

¹⁴ *Ibid.*, p. 402.

¹⁵ *Journal of Commerce* (New York), September 7, 1955.

Some experts, mainly executives of large corporations, advance the opinion that the application of automation is limited to a few branches of manufacturing industry, and even here only large companies producing standardized goods have been able to use automated machinery. These experts also state that 80 to 90 percent of all American production is in lots of less than 25 individual pieces. It is impossible to build special-purpose machines to manufacture these because the character of the product changes too frequently. Thus, the most reasonable expectation is that medium-to-long runs of similar products will be most susceptible to automatic production.¹⁶ According to Mr. Diebold, "The fields of industry most susceptible to automation are: bakery products, beverages, confectionery, rayon, knit goods, paperboard containers, printing, chemicals, petroleum refining, glass products, cement, agricultural machinery, miscellaneous machinery, communications. . . These industries employ only about 8 percent of the total labor force."¹⁷

Mr. Reuther sharply questions the limitation of automation to certain mass-production industries. He points out as an important feature of automation the fact that "it can be applied not only to long runs of identical operations, but to fairly short-run jobs where

instructions given to machines have to be changed at the end of each job. This is made possible through the use of printed tape, punch cards, etc., on which the instructions are coded, and the machine is given a new set of instructions simply by changing the tape or card."¹⁸

Only time will tell which of the two opposing viewpoints — management or labor — is correct. In summary, however, this much may be stated to indicate future trends with respect to speed and expansion of automation:

First, the recent period of capital growth maintained in part by the cold war budgets was an active promoter of automation. Additional demands for capital goods and consumer goods will induce producers to speed up the process of automation, since most of them wish to be ready to satisfy a considerable part of the additional demand for the products of their industry. Second, private and military research projects largely paid for by the Federal government will considerably expand knowledge as to the ways of applying automation to various productive processes. Third, favorable changes in Federal tax laws with regard to accelerated depreciation of new investments may also considerably speed up the use of automated machinery.

It should be emphasized again that

¹⁶ *Hearings, op. cit.*, p. 9.

¹⁷ *Ibid.*, p. 26.

¹⁸ *Ibid.*, p. 99.

the conclusions reached here concerning the impact of automation on the stability of manufacturing employment are based on the assumption that outside, noneconomic forces will not interfere with the process of automation and its consequences. If legislative actions

and the economic policy of the Federal government regulated the use of automated machinery, or if they acted to eliminate the extreme fluctuations of business cycles, automation would have much less impact on the stability of employment.

Books Reviewed

The Theory of Wage Determination.

By John T. Dunlop, ed. (New York: St. Martin's Press, 1957. Pp. xv, 437. \$7.50)

This volume is a compilation of 21 papers presented at the 1954 meeting of the International Economic Association in Switzerland. The papers are divided among five major topics — general wage level, impact of the labor union, wage structure, nature of bargaining, and labor market and labor supply. A lengthy record of the discussion of the papers is also given.

In his introduction the editor states that "by bringing together specialists in labor economics and general theorists, the . . . conference aspired towards a more general theory of wages, towards a framework of analysis of wage experience applicable to a wider range of economies." With this aspiration all labor economists can concur. For probably in no other area of economics is there as wide a schism between theory and practice as in wage theory. The shortcomings of economic theory, especially in attempting to explain specific wage structures, have driven many labor economists to institutional or noneconomic approaches. Any work which transcends regional or national wage problems and which of-

fers a universal theoretical framework for future policy decisions is to be appreciated.

While all the articles evidence a high degree of serious, scholarly effort, two pairs of articles stand out as being most timely in the field. These are the two articles on the relationship between wage policy and full employment (by Bent Hansen and V. F. Wagner) and the two on the theory of bargaining (by K. W. Rothschild and G. L. S. Shackle). Both Hansen and Wagner demonstrate how it is theoretically possible to achieve wage and price stability under full employment conditions. According to the former, "The condition for money wages to be constant on the average is that a certain weighted sum of excess demands (overemployment) and excess supplies (unemployment) in the labour market shall be zero." Wagner demonstrates that inflation is not unavoidable with full employment in a free-market economy. However, this would place "great responsibility . . . on the parties in collective bargaining." It seems unlikely that either Hansen's or Wagner's conditions for full employment (however defined) without inflation will be met, if recent experience in the United States and Western European countries is any criterion.

In his article on bargaining theory, Rothschild first shows how in the mainstream of orthodox classical economics there was no place for any successful bargaining theory. The marginal productivity theory, for example, in its rigid assumptions left no room for bargaining. It postulated that increases in wages *ceteris paribus* must cause unemployment; it precluded increased worker productivity or voluntary withdrawal from the labor force (of women) as a result of the wage increase. The article, after emphasizing that theoretical economic models can and must include bargaining processes, ends rather abruptly on the suggestion that psychological studies of human behavior and rationality may be useful for this purpose. Shackle's article on bargaining is more stimulating and encompasses detailed analysis and criticism of the approaches of Hicks, Pen, and Zeuthen toward bargaining theory. Shackle, like Rothschild, concludes that "an adequate theory of bargaining requires us to study psychological questions which many economists even today regard as outside the proper scope of economics." The discussion by the meeting's participants on these two articles (pp. 351-59) is quite provocative and explores the problems of the relationship between economics and sociology and psychology and of whether determinacy can ever be achieved in bargaining theory.

The ten articles (almost half the book) devoted to wage experience in Great Britain, France, Sweden, and the United States offer some interesting comments on the impact of unions on wage structures and on economic stabil-

ity in those countries. If the reader remembers that differences in economic and political institutions and in national characteristics are a limited factor, he can judiciously extend the articles' implications beyond national boundaries. It is also interesting to note how much more conversant with American labor economics are the foreign economists than we are with theirs. This is probably due less to our pre-eminence in the field than to our unwillingness or inability to read foreign language articles.

Those who expect to find in this volume some startlingly new insights into the problems of amalgamating theory and practice in wage determination are sure to be disappointed. However, the articles are thought-provoking and in synthesizing existing wage theory and in providing useful information on wage stabilization experience in several countries, the volume renders a distinct service to the labor economist.

EDWARD SUSSNA

University of Pittsburgh

Overhead Costing: The Costing of Manufactured Products. By R. Lee Brummet (Ann Arbor: University of Michigan, Bureau of Business Research, 1957. Pp. xii, 157. \$5.00)

This well-organized, well-written monograph by Dr. Brummet presumably is based upon, or at least associated with, his doctoral dissertation at the University of Michigan which had the title, "Overhead Costs of Products: Accounting and Managerial Viewpoints." The objective of the monograph, in the words of the author (p. vii), is "to explore the various concepts

of overhead costs of products from several viewpoints in an attempt to clarify the problems involved and to encourage a re-examination of the entire area of overhead costing."

In pursuit of this aim, the author has made a careful study of the rather large body of literature dealing with this area. He makes innumerable references to and comments on many other publications and he does not hesitate to say when and why he differs with other writers. The result is a stimulating analysis of a subject which is increasing in importance as mechanization and automation are carried further in industry.

After a thirteen-page history of overhead costing since 1875, the monograph discusses five areas as they are affected by overhead costing of products — income determination, financial accounting, planning, pricing decisions, and cost control.

In his discussion of income determination (Chapter 2) the author illustrates with figures five different treatments of production overhead costs and compares their widely different effects on income. He points out the inadequacy of the pronouncement of the American Institute of Certified Public Accountants on the assignment of overhead to product cost (Chapter 4, Accounting Research Bulletin No. 43, 1953). He seems to overemphasize somewhat the responsibility of the public accountants and their national organization on this point and to understate that of the industrial accountants. Published financial statements are primarily the representations of the com-

panies themselves and not of the public accountants who certify them.

Dr. Brummet makes a fairly good case for the long-run planned utilization of plant facilities as the base for determination of overhead charging rates, in preference to the four well-known bases — theoretical maximum capacity, practical capacity, average activity, and expected activity. He recommends use of the last two terms rather than the common terms "average capacity" and "expected capacity" on the grounds that these concepts are not indicative of maximum potential and therefore the use of the term "capacity" is inappropriate. The planned utilization basis leads to his suggestion that underabsorbed or overabsorbed production overhead balances should be deferred as a general rule unless long-run planned activity levels are revised.

Of particular interest among the author's generally adverse comments on "direct costing" (pp. 53-59) is his rebuttal of two of the charges made by advocates of "direct costing" against "absorption costing." The assertion has been made that "absorption costing" recognizes unrealized income by permitting an increase in the output level to produce a larger profit in a period of low sales than in a period of high sales. The author argues that the fact that sales are necessary to the producing of net income does not mean that no other factor is involved. He states that net income should show the effects of both production levels and sales volumes. On the claim that absorption costing makes it possible for management to manipulate profits by merely increasing or de-

creasing the level of production, Dr. Brummet shows that under the "direct costing" procedure the potential area of profit manipulation by artificially timing sales transactions is even greater than in "absorption costing" because of the wider margin between sales prices and cost of goods sold under "direct costing."

The monograph indicates that the greatest merit of "direct costing" may lie in the area of pricing decisions. While pointing out the ways in which "direct costing" falls short of marginal cost pricing, the author discusses the ways in which "direct costing" provides, in some situations, a rough approximation of the marginal method, which is useful for certain short-term pricing decisions. He concludes his discussion of pricing decisions, appropriately enough, with Alfred Marshall's observations on the characteristics of a dynamic economy, including the lines,

In this world, therefore, every plain and simple doctrine as to the relations between cost of production, demand and value is necessarily false; and the greater the appearance of lucidity which is given to it by skillful exposition, the more mischievous it is.

If there is one central thesis in this monograph of varied conclusions as to proper product overhead cost concepts for differing objectives, it is to urge flexibility and imagination in the devising of product overhead cost concepts, and to strive simultaneously for proper concepts for specific purposes. This is a scholarly work of timely interest and deserves a wide reading among accountants, economists, and management men.

ROBERT I. DICKEY

University of Illinois

Economic Backwardness and Economic Growth. By Harvey Leibenstein. (New York: John Wiley and Sons, 1957. Pp. xiv, 295. \$6.75)

Here is an interesting and useful addition to the growing literature on underdeveloped areas. In this book Mr. Leibenstein has endeavored to develop a general theory of economic backwardness and economic development whose object is to explain, "in the general case," why some countries should have developed rapidly whereas others remain more or less stagnant.

This is the gist of the theory: The author holds that "it is convenient and useful to look at backward economies . . . as equilibrium systems in which the equilibrium state possesses some degree of stability, and to see advanced economies in terms of disequilibrium systems" (p. 15). If the equilibrium of a backward economy is disturbed, the forces that tend to raise per capita income set in motion, directly or indirectly, forces that have the effect of depressing per capita income. This will be the case so long as the stimulant applied is "small." But if the stimulant is above a certain minimum size, the effects of the income-raising forces are greater than those of the income-depressing forces. On the basis of these ideas the author puts forward "the critical minimum effort" thesis which states that in order to escape from the conditions of underdevelopment equilibrium, the economy must receive a stimulant to growth that is greater than a certain critical minimum size (p. 16). Examples of income-depressing forces would be intensive utilization of land that neutralizes improvements previously made

increases in population that dilute resources per head and lead to the operation of the law of diminishing returns, and so on. Of these forces, most importance is attached to increases in population. There seems to be a biologically determined maximum rate of growth of population (between 3 and 4 per cent) and so it is reasonable to argue that the income-depressing forces have a maximum value.

The major part of the book is devoted to the exposition and development of this general theory, though many other specific matters connected with economic development are also dealt with in various chapters. So far as the general theory is concerned, it can be said that Mr. Leibenstein has only restated in a formalized and systematic manner, and with many methodological refinements, the now-familiar concept of the so-called vicious circle of poverty. We agree with the author that "the idea of ascribing to the state of economic backwardness stability in the small is a much more exact way of viewing the matter" (p. 96). But the vicious-circle concept was put forward only as a description of the present state of some of the underdeveloped economies, whereas Mr. Leibenstein's thesis is more ambitious and purports to be a general theory of development which can explain why some countries have developed and others have failed to do so.

The reviewer feels that it may be misleading to look upon every backward economy as being in a state of underdevelopment equilibrium simply because the per capita income has not registered any significant increase. A

base for industrialization and development might have been laid and the institutional structure might have undergone favorable changes, but per capita income might not have risen. India, for instance, is in a much better position to embark upon rapid economic development today than she was, say, in 1900. Judging such an economy solely on the basis of per capita income can easily lead one astray. Indeed the notion that the underdeveloped nations have been merely stagnating to date has been rejected by such writers as P. T. Bauer.¹

Although it is conceivable that income-raising forces may at any time bring about income-depressing forces, a theory developed solely in terms of such counterbalancing forces to explain why many countries have not undergone rapid economic development is somewhat unconvincing. It seems to imply that it is the inherent and "natural" tendencies of the backward economies rather than certain historical events that have been primarily responsible for inhibiting development. For many underdeveloped countries this does not seem to be true. Economic development takes place only if the group which is politically and economically dominant, or is becoming dominant, is bent upon activities that lead to development, whatever the motivations behind such activities may be. It may be that the foreign groups that were dominant for many years in many of the currently underdeveloped areas were simply not inter-

¹ See, for instance, P. T. Bauer, *Economic Analysis and Policy in Underdeveloped Countries* (Durham, N. C.: Duke University Press, 1957), pp. 49-52.

ested in the development of these areas. Policies, laws, and institutions have to be so fashioned as to facilitate economic development, which is exactly what was not done in many cases. Any explanation of underdevelopment which leaves this factor out of the picture must surely be deemed incomplete. The author devotes less than a paragraph to this important factor.

The author's theory relies heavily on increases in population. Such increases may be induced directly by increased supplies of food and other necessities; they can also come about through a fall in mortality rates consequent on the introduction of various medical and health measures. The second is by far the more important reason for increases in the rate of growth of population in the underdeveloped areas. In the unique historical situation of today, with a particular political and moral climate, it is inevitable that substantial fruits of economic development should be devoted to the reduction of mortality rates. This might not have been so in an earlier century; the same medical knowledge itself was not there. Therefore, the historical and social situation is all important and we do not see how "the abstract, the non-empirical and non-historical approach" can yield valid results. All this is not to deny the usefulness and value of Mr. Leibenstein's formulations. His theory could probably be used as a working hypothesis for an analysis of the problems of underdeveloped countries *as they exist today*. However, as an explanation of why these countries failed to develop rapidly, it seems to be inadequate.

The book treats also of certain im-

portant factors involved in economic development such as underemployment, changes in occupational distribution, population growth, and so on. These discussions suggest a number of interesting ideas. Most significant is the author's attempt to develop a theory of population growth as part of the general theory of development. He treats the rate of growth of population as an endogenous variable and exposes the error of considering "population pressure" as an independent problem. His theory has certain implications for policy which are spelled out toward the end of the book.

The book is written in a lucid style and makes easy reading. It has the usual diagrammatic accouterments of equilibrium analysis.

RAJA J. CHELLIAH

University of Pittsburgh

The South African Frontier: Economic Influences, 1652-1836. By S. Daniel Neumark (Stanford: Stanford University Press, 1957. Pp. xiii, 194. \$5.00)

This book could be regarded as an economic history of South Africa during the several decades preceding the Great Trek or as an example of the conditions of economic development of a frontier economy. It is clear from Mr. Neumark's presentation, notably in his summary chapter, that the latter is his main objective. Thus the story told in these pages invites comparison with analogous events in other countries whose economic development included a phase of frontier settlement.

In evaluating the South African study we must make clear the condi-

tions under which expansion of settlement may occur. In principle we may distinguish two extreme kinds of frontier settlement which occur as a result of predominantly economic factors. One is the extension of land settlement in areas in which population pressure in the settled regions makes further intensification of agriculture impossible and in which added populations can find the necessary means of subsistence only by emigration. This pattern occurred in northern and western India under the Mogul emperors; it was the basis of Chinese land settlement in Manchuria and of the swarming of Japanese farmers into Hokkaido. The second kind of extension of land settlement is the development of a farm economy in which land forms a strategic factor of production and in which growth can occur only if a larger amount of this factor can be secured. This case is described in Neumark's book.

The basic theme which is reiterated throughout the work is the denial of the proposition that frontier expansion is caused by the dynamics of a self-sufficient agricultural economy determined by the natural increase of its inhabitants. Instead, Neumark asserts that expansion of the frontier is dependent on the expansion of the frontier's markets. It is not difficult to see why this explanation holds true for the second type of agricultural expansion which was outlined in the preceding paragraph. The provisioning of markets is the original cause for the development of this type of agriculture, and hence the expansion of these markets is the primary incentive for the growth of the frontier economy. Since the econ-

omy of the Cape of Good Hope, from the very beginning of its establishment, was oriented primarily toward the provisioning of ships passing between Europe and India or the Spice Islands, the market feature was, so to speak, built into it from its inception. It is therefore no wonder that the further growth of South African agriculture, notably the raising of sheep, should be strongly influenced by the possibility of marketing its products in the ports, either for consumption by the urban population or for export.

What interests an American reader, above all, in Neumark's book is the parallelism between the South African expansion and the American experience. Perhaps the closest parallel in American economic history to the development of South Africa is the economic growth of California in the nineteenth century. San Francisco played the role of Capetown, the Central Valley the role of the Karroo and the Orange River Valley, and wheat the role of sheep. The main market for California grain was in the gold camps, the port cities, or abroad.

For the westward movement which started on the Atlantic coast and led to the gradual conquest of the North American continent, the analogy with South Africa is less perfect. To be sure, important episodes in the development of the American frontier were caused by factors similar to those which led the Boers of the Cape to move northward into the interior. But a good portion of American frontier settlements became fairly self-sufficient rural communities, and a few pockets of such communities maintained themselves for many decades. Examples may be found

in southern Illinois, in the hill country of the Border States, among the upland farm communities in the Piedmont, and perhaps most tenaciously in Quebec. And though not a few Americans were impelled to move west by a rational calculation of where a greater profit could be made from farming, many went because of their hope of getting rich quickly in the gold fields, because of a spirit of adventure, or because they were impelled by the "myth of the garden" which Henry Nash Smith has described so vividly in *Virgin Land*. The American experience is too complex to be fitted neatly into the rather narrow formula of Mr. Neumark.

But it would be wrong to blame Neumark for this lack of fit. He wrote on South Africa and not on the United States or Canada. By selecting the economy of South Africa he has, however, chosen an instance which comes close to the ideal type of the market-oriented frontier which is heavily dependent on land (a term which is meant to include climatic conditions and rainfall). An instance close to an ideal type at the other extreme might be the settlement of Hokkaido in the nineteenth century, or the attempt by the present government of Indonesia to develop self-sufficient villages in the Outer Islands in order to reduce population pressure in Java. Most other instances of extension of agricultural settlement fall somewhere between these two extremes, though we should not neglect cases in which the chief determinant of frontier expansion is not economic but political. The chief merit of Neumark's book consists, then, not in having presented an economic theory

of frontier agriculture, but in having elucidated by means of a case study, in a most skillful and complete manner, the conditions under which a particular — and by no means unimportant — kind of economic development may take place.

BERT F. HOSELITZ

University of Chicago

Soviet Transportation Policy. By Holland Hunter (Cambridge: Harvard University Press, 1957. Pp. xviii, 416. \$8.50)

This volume, one of the Harvard Russian Research Center Studies, is described by the author as an essay in economic history dealing with transportation in the USSR during the period 1928-55. The book is said to have grown out of a belief that "Soviet policies toward transportation during a period of rapid industrialization provide significant lessons for many other countries now on the eve of rapid industrial growth" (p. xxi), and the further conviction that more data relating to Soviet transportation were available than had commonly been supposed. The author points out that these data have sometimes been seriously misused by Soviet writers, that they suffer from incompleteness and other deficiencies, but that most Western scholars agree that they have not been deliberately manipulated; hence "they provide the fragments with which an accurate reconstruction of the record can be attempted" (p. xxiii).

Introductory chapters review the geographic factors and Soviet locational objectives which have influenced transportation development. The latter rest on three principles: (1) to remove the

uneven development of central as compared with outlying areas characteristic of capitalist economies, (2) to advance the backward regions, and (3) to beware of capitalist encirclement. These principles would call for the concentration of industrial expansion in the undeveloped eastern portion of Soviet territory. However, the expansion of industry in this area has been slow and the proportion of the total industrial output produced in the more highly developed western portion of Soviet territory has not changed greatly. Hunter ascribes this result to the geographical and climatic handicaps of the eastern area, to the government's desire for the utmost speed in industrial development, to the greater opportunities for achieving the economies of large-scale production in the already developed western area, and to the existence of a more adequate and only partially utilized transportation system in the latter area. The situation has been somewhat obscured, for political reasons, by the device of shifting to the west the boundary between the eastern and western areas and by not mentioning developments in the area between the Nazi-occupied territory in the west and the true eastern regions.

The main part of the book is devoted to a detailed discussion of various aspects of the performance of the Soviet transportation system. Hunter finds that transportation capacity has kept pace with the requirements of the economy except during the period 1931-34. The serious shortage of facilities during these years resulted from allocating too small a share of national investment to transportation and relying too heavily upon

increasing the efficiency of operations. The author says that "Soviet railroad men have good reason to be proud of their World War II record" (p. 108), although the magnitude of their achievement must be qualified by recognizing that "the Nazi invasion eliminated from the demands on the railroads more than it eliminated from their ability to meet those demands, and this provided a margin of capacity for dealing with military traffic" (p. 109).

There is an informative comparison of Soviet and American operating statistics and operating practices. Freight traffic density, measured in ton-miles of revenue and non-revenue freight per mile of road, is much higher in Russia than in this country — 2.79 times as great for the period 1951-55. This comparison reflects the large mileage of light-traffic feeder lines in the United States. The Russians have apparently been more successful than we in securing prompt loading and unloading of freight cars, with a resulting increase in the efficiency of freight car utilization. The practice of running many short, light trains instead of fewer and heavier trains reflects the fact that labor is less scarce relative to capital in Russia than in the United States. The author concludes that the American attitude toward Soviet railroad performance "should be one of respect rather than complacency" (p. 144).

The discussion of the relations between, and relative importance of, different agencies of transportation is of particular interest in view of the central importance of the problem of transport coordination in the United States. One very significant fact brought out by the

author is the contrast between Russia and the United States with respect to the trend in relative importance of rail transportation. The proportion of total ton-kilometers carried by the Russian railroads increased from somewhat more than 75 percent in 1928 to 84 percent in 1955, while during the same period the proportion of total intercity ton-miles carried by American railroads declined from approximately 75 percent to about 50 percent. Of the 1955 Russian traffic not carried by railroads, 12 percent was handled by inland waterway and maritime carriers, 3 percent by trucks, and 1 percent by petroleum pipelines. In explanation of the extremely small share of the total traffic handled by trucks, the author says that the necessary heavy investment in highways in other countries has been made primarily to accommodate private passenger cars "and the rise of intercity common-carrier truck transportation has been merely a by-product. No similar pull from the Consumer side has existed in the U.S.S.R., and the government has not seen fit to devote a large volume of resources to highway construction when it was cheaper to expand the carrying capacity of the railroad network" (p. 154). However, Hunter points out that a continuation of the substantial increase in bus and truck traffic in recent years may be expected.

The author points out that while in theory the coordination of various forms of transportation could be accomplished more easily in a planned economy than under other types of economic organization, the Russian accomplishments in this direction have thus far been dis-

appointing. For example, although it is generally agreed that most types of short-haul traffic can be handled more economically by trucks than by rail, "railroad officials in the U.S.S.R. have complained bitterly for years that such short-haul traffic still falls too heavily on the railroads" (p. 157). The following comment by the author is of interest in this connection:

Broad ideological slogans relating to ownership of the means of production may not really be relevant. Certainly unification of a complex, multicarrier transportation system cannot be expected to follow automatically from nationalization or from the operation of a planned economy. Examination of this one detailed aspect of Soviet transportation tends to support the conclusion—one which has seemed applicable elsewhere in the economy—that the resource allocation problems of a modern industrial economy cut across ideological boundaries. There is no evidence that the Soviet transportation system is any more "unified" than the American transportation system. In a purely technical sense, the reverse appears more accurate. In each economy, difficult technical problems are confronted, and political slogans do not aid appreciably in solving them. (p. 159)

The concluding chapters of the study are devoted to a statistical analysis of railroad costs and revenues, the relation between growth in industrial output and growth in freight traffic, and railroad capital-output relationships.

The study impresses the reviewer as being a very scholarly piece of work. The text is heavily documented, there is an extensive bibliography, and there are a hundred pages of statistical appendixes supporting the analysis in the text. The study contains a considerable amount of material of interest to stu-

dents of transportation, but it will probably be of primary interest to students of the Russian economy and of the problems of economic development.

ROBERT W. HARBESON

University of Illinois

Japan's Finance and Taxation, 1940-1956. By Saburo Shiomi. Translated by Shotaro Hasegawa (New York: Columbia University Press, 1957. Pp. xvi, 190. \$6.00)

Professor Saburo Shiomi, the dean of Japanese tax economists, enjoys international fame for a series of studies in the fiscal history and analyses of the fiscal statistics of his native land. In policy he is a gentle, unobtrusive conservative, whose very reasonableness and moderation make him a favorite spokesman for business interests in tax matters. He has no real counterpart in America.

Though Shiomi has a lengthy German bibliography, his first major publication in English is an event in international fiscal circles. Shiomi does not write English well, but this volume appears in translation by a long-time Mitsui official, now with the Osaka Gas Company. The foreword is by no less a personage than Hisato Ichimada, former Minister of Finance and long-time Governor of the Bank of Japan. This in itself indicates the repute in which Shiomi is held at home.

The book falls into the pattern of a collection of representative essays. It is in four parts. Part I is a 30-page summary, necessarily superficial, of Japan's general economic history from 1940 through 1956. Part II brings together

five chapters of Japanese tax history covering the same period; this is useful reference material for the specialist but requires much more Japanese background to distinguish the forest from the trees than Part I can supply. Part III traces the history of the Japanese personal and corporate income taxes from the 1880's to the present day, with special stress on direct German influence in framing the first Japanese law. Part IV, entitled merely "Some Special Research," consists of two unrelated statistical essays. The first, entitled "The Effect of Taxation on the Disparity between Rich and Poor," though the most analytical piece in the book, is of less interest in its taxation aspects than for its suggestion that World War I increased inequality in Japan, whereas World War II had precisely the opposite effect. The final "Financial Survey of 67 Municipalities" in the Osaka area will provide suggestive comparisons with "metropolitan area" fiscal studies both here and abroad, but is not particularly penetrating or incisive in itself.

Characteristic of this volume, as of most of Shiomi's published work, is the polite avoidance of controversy. To cite one example, the last Japanese war cabinet's financial sabotage of the Occupation is passed off with this sentence (p. 64): "Immediately before the end of the war government funds were released in large quantities to settle such national debts as the unpaid accounts of munitions, indemnities for war-devastated plants, and soon this, working together with the social unrest created by surrender, caused a sharp advance in prices." And it would re-

quire real perspicacity for a Man from Mars to realize from Shiomi's relevant chapters (5 and 6) the volume of protest inspired by the Shoup Tax System or the extent to which subsequent modifications were aimed at its eventual overthrow. Nevertheless, an occasional Shiomi preconception is stated quite clearly, as for example (p. 86): "It seems paradoxical to speak of the stimulation of production and the deconcentration of wealth at the same time. But these were the explicit objectives of the Shoup system." Shiomi's methodological principles also appear no less than three times on the same page (p. 86), when, rather than bringing logical arguments to bear against three separate Shoup recommendations, he mentions only the fact of their being original and untried.

In short, this is a useful compendium of provisions of Japanese tax laws and analyses of Japanese fiscal statistics. Many interesting details of tax history are uncovered, but verisimilitude is sometimes sacrificed to sweetness and light. Tax and monetary theory of the conventional Anglo-American type are almost completely absent, although they might have improved the discussion at many points.

A misprint which may confuse some readers occurs in the basic equation of page 155. The left-hand side is written N ; it should be η (eta).

M. BRONFENBRENNER

Michigan State University

Economic Concentration and the Monopoly Problem. By Edward S. Mason (Cambridge: Harvard Uni-

versity Press, 1957. Pp. xi, 401. \$6.00)

This hundredth volume of the Harvard Economic Studies is a collection of papers by Professor Mason over the last twenty years concerning mainly, but not exclusively, the problems of monopoly and the large firm. Of the nineteen chapters, four were written in the second half of the 1930's, five in the 1940's, and ten in the 1950's. But despite the age of some of these papers, their sound theoretical approach keeps them alive.

Part I is entitled "The Large Firm and the Structure of Industrial Markets," and the first of its five chapters, the one new paper presented, is a review of recent literature on economic concentration and the monopoly problem. His principal conclusions are that although many American manufacturing industries are very heavily concentrated, they are less concentrated than similar industries in many other countries, and that studies of trends have yielded "useful negative conclusions," i.e., that there is no inevitable force producing an increase in concentration over time (p. 42). As for whether monopoly is increasing, he notes no substantial change in his views of 1936 (presented in Chapter 2). "We do not know" (p. 39). He complains at both points of time that available data are not adequate to provide an answer to this question.

Chapter 3, a 1939 paper on "Price and Production Policies of Large-Scale Enterprise," points both to various elements of market structure and to the internal organization of the firm as explaining differences in the price re-

sponses of firms to changes in cost or demand conditions. But Professor Mason notes in his introduction to Part I that no complete follow-up has been made in this area. The breadth of the material covered in this book is represented by his next two papers, on cartels and commodity agreements, and on Schumpeter on monopoly and the large firm. In the latter, although he charges Schumpeter with a certain amount of distortion, he applauds him for his attacks on static economic analysis as a foundation for public antimonopoly policy. "Almost everything that has been and can be said in praise of the 'new competition' was said first — and much better — by Schumpeter" (p. 13).

In Part II, "Wage-Price Problems," he points to the discovery of price rigidity as a product of the Great Depression and tries, in a 1938 paper, to distinguish between its various meanings and measures and examines the frequency and amplitude of wholesale price changes since 1890. Discussion in a 1940 paper of the relationship between price policies and full employment is concerned largely with avoiding downturns and sustaining recovery, whereas in his post-war writing, discussion concentrates on avoidance of persistent upward pressures on price levels. In the latter, Mason sees wage rates, particularly of organized labor, and the prices of goods in the small-enterprise sector of the economy as the more dynamic elements. But "with respect to relative prices, costs, and profits we can make almost no universally valid statements about their relation to economic stability. Particular downswings or upswings, under particular circumstances, may be

halted by special relationships of costs and prices but not only is our theory incomplete, but also the relevant data on which to base a conclusive policy statement is virtually never available in time" (pp. 194-95).

The final chapter in Part II is a 1955 paper on labor monopoly. He is here most concerned with the concept of "unreasonable" power. He reminds us that "collective bargaining inevitably requires the existence of unions with a substantial degree of market power" (p. 208).

The inclusion of the four chapters of Part III, on "Raw Materials, Security, and Economic Growth," does not fit the title of the book. The material is not concerned directly with concentration or the monopoly problem. But on Professor Mason's own admission, it represents one of his special interests and permits him to express his optimism that the raw material requirements for the free world can be met over the next quarter-century, technically at least, at declining real costs.

The first chapter of Part IV on "Antitrust Policy" is the *Yale Law Journal* article of 1937 on "Monopoly in Law and Economics," which was selected for publication in the American Economic Association's *Readings in the Social Control of Industry*. One of his principal objectives here was to point out the growing divergences between legal and economic conceptions of monopoly. This is followed by his much-cited article "The Current Status of the Monopoly Problem in the United States" (*Harvard Law Review*, 1949), where the question of market structure versus market performance is discussed.

Mason stated here that the courts had moved "a substantial distance" toward accepting economic criteria as tests, but a principal conclusion was that the tests of workable competition and effective business performance should be used to complement each other. The last three chapters are largely concerned with matters of efficiency, market power, and the law. The last chapter, comments on the Report of the Attorney General's National Committee to study the Antitrust Laws, is an excellent illustration of Mason's ability to discuss the seemingly specific in terms of general principles.

MARSHALL C. HOWARD

University of Massachusetts

Maintenance of Way Employment on U. S. Railroads. By William Haber, John J. Carroll, Mark L. Kahn, and Merton J. Peck (Detroit: Brotherhood of Maintenance of Way Employees, 1957. Pp. xiv, 237)

This book is subtitled "An Analysis of the Sources of Instability and Remedial Measures" and concerns itself with the difficult problem of employment displacement, a problem more serious for this craft than for any other craft in the railroad industry and probably more serious than many other crafts in other industries. In the words of Sumner H. Slichter, who wrote the foreword, "no union has adopted a more statesmanlike approach to its problems than has been adopted by the Brotherhood." This is what is unique about the book. The union asked a group of economists to study the problem of employment displacement and

instability, and in the words of the president of the union, "at no time did the union . . . seek to limit or control the scope, content, or direction of the study." The union was seeking "a completely independent and objective diagnosis of a persistent and deep-seated malady. . . ."

It is interesting to note further that the recommendations made by the group of economists were the basis of proposals submitted by the Brotherhood to the railroads for negotiation.

The report is concerned with three types of employment instability: technological, seasonal, and cyclical. For each type the employment data are carefully analyzed, the factors contributing to the instability are discussed, and specific recommendations are made to alleviate the problems.

It is unnecessary, for the purpose of this review, to summarize the data on the long-run downward trend in maintenance-of-way employment, the severe cyclical fluctuations, and the sharp seasonal variation in employment to which this group of workers has been subjected. The facts are quite clear. The questions confronting the group of analysts include: What can be done about it by the government, the railroads, and the unions? Who shall bear the costs that are involved in these recommendations? It is to the credit of the writers of the report that they recognize that the costs involved must be shared by the railroads, the union, and the public at large through governmental action.

What is also significant is that the union was willing to accept this approach, an approach which is quite

novel in the annals of industrial relations. Too frequently unions which have been faced with the problem of technological displacement have tried to impose the entire cost on the management, which in effect meant the public.

If the union recognizes that it must accept the inevitable results of technological displacement, with some assistance from the government, it is not unreasonable to expect that management will accept certain responsibilities for easing the problems of cyclical and seasonal employment instability. The economists who wrote the report set forth certain "positive stabilization measures" and certain "employment and income guarantees" which management should accept and follow.

It seems to this reviewer that the railroads face a real challenge from the union. The union has demonstrated its willingness to accept the inevitability of technological displacement without burdening the railroads with any serious costs. Will the railroads accept their responsibility in the area of short-run employment instability? The outcome of the negotiations between the Brotherhood of Maintenance of Way Employees and the railroads should be awaited with great interest by students of industrial relations.

The reviewer commends this book to all who are interested in observing a situation in which "the union is a statesman." He also urges these same students to follow up the negotiations which are now pending.

JACOB J. KAUFMAN

Pennsylvania State University

Residential Finance, 1950. By Richard U. Ratcliff, Daniel B. Rathbun, and Junia H. Honnold. A volume in the Census Monograph Series for the Social Science Research Council and the Bureau of the Census, U. S. Department of Commerce (New York: John Wiley and Sons, 1957. Pp. x, 180. \$6.00)

Most of the tabulations in this study are based on data gathered from a scientifically selected sample of non-farm homes and rental properties as reported in Vol. 4, *Residential Financing*, of the *1950 Census of Housing*. An interesting and valuable aspect of this census was the attempt made to verify with the mortgagor the facts gathered from the mortgagee, a procedure which was subsequently followed with a sample of credit buyers in the Federal Reserve Board's survey of new car purchasers.

The authors specifically disclaim any attempt to make this an "intensive, refined analysis." Rather than risk the omission of important materials, they have chosen a more extensive treatment of the census data. They have fulfilled their stated purpose by covering 192 text tables within the confines of 176 pages. To cover this much tabular data adequately in so short a space is a very difficult writing job. Although some may feel that the text is mere "table reading" in places, the authors have generally produced a concise, readable, and sophisticated guide to their tables. Possibly their most important contribution has been to point out the highlights of the data and the inherent limitations on their use. At many points they have drawn data from various

parts of the *Census of Housing* and have combined them to show their relationships. Analytical comments are relatively sparse, but with the grasp of the subject matter which he should gain from this study, the reader should be well equipped to develop his own extended analysis.

In a sense, this book is a companion volume to the excellent study by J. E. Morton, *Urban Mortgage Lending*, made under the Financial Research Program of the National Bureau of Economic Research. Although complementary in many areas, the two studies differ in some respects. The National Bureau publication did not have the benefit of the 1950 census data except for some preliminary tabulations. It is also more analytical and covers mortgage lending experience over some period of time. On the other hand, this census monograph has an extensive treatment of junior mortgages and mortgages on rental housing not encompassed by the National Bureau's study.

The first of six major sections traces residential finance from 1890 to 1950. Information is presented concerning the mortgage status of dwelling units, outstanding mortgage debt, mortgage loan terms, and the type of mortgage holder. The authors have shown commendable caution in the difficult task of comparing series of one census with another. It might be noted that one defect over which they had no control is that interest rates shown are contract rates unadjusted for discounts or premiums.

The second section deals with the differences among lenders related to their use of government insurance,

characteristics of the mortgaged property, mortgage contract terms, and the nature of the borrowers. Those who visualize insurance companies as concentrating on mortgages on multi-unit dwellings will be interested to note the higher-than-average proportion of the number of their first mortgage holdings that is in mortgages on one-family homes. Data elsewhere in the chapter suggest a fairly considerable secondary market for conventional mortgage loans.

The third, and fairly short, section turns to the mortgage status of various occupational groups, income groups, veterans, and nonwhites. As might be expected, the higher the family income, the lower the proportion of mortgage payments for principal and interest as a percentage of income.

In the next section a considerable body of data is presented concerning junior mortgages. The incidence of junior financing is not great (5 percent) and a goodly proportion of junior mortgages are VA-guaranteed. However, in cases where junior mortgages are used, a 20 percent decline in property values would find over two-fifths of the single-unit, owner-occupied properties with a total mortgage debt in excess of property values.

The largest section in the monograph deals with financing of rental housing, an area included in the *Census of Housing* for the first time in 1950. Among the topics covered are the physical features of these properties and the terms under which they are financed. The current income on rental properties is related to mortgage and tax payments, and data on the delinquency status of these mortgage

loans are also presented. Information on rental receipts supports the observation that in relation to value and quality, rents are higher on the lower-grade than on the higher-grade homes.

The final section brings together information concerning the character and importance of government mortgage guarantees. Among the topics covered are the incidence of government mortgage insurance, characteristics of property financed, loan terms, the relation of loans to purchase prices and market values, and the relation of mortgage payments to the borrowers' incomes.

In a few instances the reader may have misgivings concerning the authors' use of medians. For example, the comparison of median debt to median market value and median purchase price is bothersome unless one knows more about the distribution of the data (pp. 56, 60-61). When two series are compared by using medians, differences in distribution can lead to statements which appear to be contradictory, but are not: "Median annual mortgage payments are lower for the entire group of nonwhite owners and for each income bracket of nonwhites than for total owners" (p. 69). "The ratio of mortgage payments to income . . . indicates that nonwhite owners pay a higher percentage of their income for principal and interest on the mortgage than do white owners" (p. 71).

In all important respects the authors have produced a carefully written study and a worth-while addition to the census monograph series. Social scientists, governmental officials, and businessmen involved in the mortgage lending field

will want to add this volume to their libraries.

ROBERT W. JOHNSON
University of Buffalo

The Empire of High Finance. By Victor Perlo (New York: International Publishers, 1957. Pp. 351. \$5.50)

This study follows the Marxian model. The inherent "logic of capitalism" leads inevitably to ever increasing industrial concentration. The masters of capital are merely agents of an inexorable historical process by which *competitive capitalism* is gradually transformed into *monopoly capitalism*. Antitrust policy is powerless to stay this inevitable course of capitalist development. The same process operates in the area of banking and finance. Bank capital becomes concentrated and then is merged with industrial capital to create *finance capitalism*.

The inner compulsion of finance capitalism toward ultimate economic power necessitates conquest of the political state. Accordingly, the state is subverted by systematic infiltration and corruption, and its sovereign powers are placed at the service of private monopoly. This unification of economic and political power gives rise to *state monopoly capitalism*. The subservient state buttresses monopoly with grants of privilege and facilitates its exploitation of the people. Overseas the state invokes its sovereign powers, particularly the military, to promote world dominion under the aegis of monopoly and finance capitalism. This *economic imperialism* is the final stage of capitalist development.

Mr. Perlo's principal concern is to demonstrate, within this conceptual framework, the consummation of finance capitalism in the United States. For this purpose he assumes that monopoly capitalism is an accomplished fact beyond prospect of reversal. His method consists of identifying and describing eight major financial interest groups: Morgan, Rockefeller, First National City Bank, du Pont, Mellon, Cleveland, Chicago, and Bank of America. Briefer attention is given to lesser groups in New York, Boston, Philadelphia, San Francisco, Los Angeles, and Texas. In each instance the power of these interest groups depends on their control of a series of great, interlocked financial institutions: commercial banks, savings banks, life insurance companies, trust companies, investment trusts, casualty insurance companies, finance companies, and investment banking firms.

Reaching out from these centers of financial power, the interest groups augment their control by alliances with rival interests, with satellite groups, with foreign banking concerns, and with the great corporation law firms. Perlo then shows how each financial interest group constructs for itself an industrial empire over which it exercises undisputed dominion and from which it extracts the maximum profits obtainable by the exploitation of monopoly power. This is the merger of banking and industrial capital foretold by Marx.

The stage is now set for the unification of economic and political power. In Chapters 15-17 Perlo portrays the Grand Merger of finance capitalism

and the national state. He demonstrates how financial interest groups infiltrate and occupy strategic policy-determining positions in the Federal government, and how, from these vantage posts, they manipulate the sovereign powers of the Federal government to consolidate and aggrandize their power both at home and abroad. Special attention is given to the exploitation of national defense for the profit and power of private monopoly and to control of foreign policy as an instrument for the promotion of economic imperialism.

This study calls for valuation on two levels. On the mundane level of factual presentation, the author has done an excellent job in an extremely difficult area of research. He has made a comprehensive survey of available data, organized the material in meaningful form, documented his sources carefully, and traced the lines of financial control as accurately and completely as the data permit. The result of this painstaking labor is a contribution to our factual knowledge of the intricacies of high finance and of its control over industry, government, and foreign policy.

On the theoretical level, however, the analysis does not inspire equal confidence. Mr. Perlo attempts to document from American experience the Marxian scheme of capitalist evolution but the proof is never quite convincing. Neither industry nor finance is as concentrated as his selected facts would make it appear. Large sectors of industry and finance lie beyond the dominion of the interest groups described. The power of these groups though formidable is

nevertheless incomplete, tenuous, and vulnerable, scarcely permanent or decisive as the Marxian theory requires. When they reach out to control the national state and to dictate foreign policy, their position becomes still more precarious, for here they encounter political and social forces which they are unable to dominate.

The factual evidence adduced provides no confirmation for the Marxian dogma that monopoly is inevitable. Mere demonstration that monopoly exists is not proof that it does so by virtue of some inherent, organic law or by some inner logic of capitalist development. Students of American institutionalism have shown conclusively by numerous investigations that monopoly

arises from defects in and abuses of existing institutions. Conversely, they have demonstrated how monopoly may be prevented by modifying and strengthening relevant institutions. This vast literature is ignored by Perlo; in fact, he speaks scornfully of those who have labored in the institutional vineyard without benefit of Marxian insight. Because of his commitment to the doctrine of inevitability and irreversibility, Mr. Perlo can visualize no solution for the monopoly problem short of socialization. Those who, untrammelled by this doctrinaire view, follow the course of pragmatic, institutional inquiry will discover many alternatives.

HORACE M. GRAY

University of Illinois

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- Regional Income*. Studies in Income and Wealth, Vol. 21, by the Conference on Research in Income and Wealth. (Princeton: Princeton University Press for the National Bureau of Economic Research, 1957. Pp. x, 408. \$8.00)

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